

EUROPEAN NEWS

Red star comes to the aid of party

ANDRE LAJOINIE is the rising star of a declining party. President of the French Communist parliamentary group in the National Assembly, he has emerged as the clear front runner to replace Mr Georges Marchais, the party's secretary general, as the Communist candidate in the next French presidential elections in 1988.

Paul Betts in Paris profiles André Lajoinie, the favourite to lead the Communists in the race for the presidency

will be 58 on Boxing Day, now sees himself leading the party in the 1988 elections. The Communists still have to announce formally their choice for the next presidential contest, but Mr Lajoinie has been placed in the spotlight by a party which carefully stage-manages its policies and changes in leadership. During the past few weeks, Mr Lajoinie has made more public appearances and pronouncements than Mr Marchais or, for that matter, any other Communist leader. Last week he also became the first party member to agree to appear on a French national television programme where leading French political personalities are interviewed in their own homes.

Mr Lajoinie received the television interviewers and cameramen in his comfortable home in the rural town of Saint-Pourcain in central France and for nearly one and a half hours talked, in his strong regional accent, as a presidential candidate. Even if he claimed that the party had yet to decide on the candidate to replace Mr Marchais, it was obvious that this consummate politician, who

yet with the reformists. Mr Lajoinie has long been seen as a leading member of the traditionalist camp in the party. He is an apparatchik whose steady rise in the party has closely followed that of Mr Marchais. He became a full-time party member when he was 25. In 1967, he was one of the last French Communist leaders to attend the educational institute for Communist cadres in Moscow. He says his period in Moscow was instructive but said during his television interview last week that if an American university had offered him a place at the time he would also have gone to study in the US. Mr Lajoinie is not the sort of person to make many concessions to the reformists. He has dismissed them as "a small island of discontented comrades." If he does eventually take over from Mr Marchais, the party under Mr Lajoinie is likely to remain firmly rooted to its traditional hardline Marxist positions. But Mr Lajoinie's style differs from that of Mr Marchais. Unlike the present leader, a gruff often aggressive and entertaining figure, Mr Lajoinie likes to act and talk like a man from farming stock. He is courteous even towards political opponents. Unlike Mr Marchais, he does not use colorful rhetoric although he speaks passionately about his political convictions and his belief that the Communists can still play a major role in



In the spotlight: André Lajoinie

France as a mass popular movement. He says that the party must now express itself more simply and straightforwardly than in the past to rally its traditional support. The question is whether Mr Lajoinie's more subdued style and his efforts to respond to the worries of the small farmer or the factory worker will succeed in halting what has increasingly seemed an irreversible historic decline. He is likely to have to rely on more than

his image to try to bring back to the fold an increasing number of disgruntled Communist voters who have either drifted to the Socialists or, paradoxically, to the right and the National Front. His efforts last week to emphasise the independence of his party from Moscow end his call for greater democracy in the Soviet Union did not sound convincing enough to persuade some of the reformists that the party was really changing.

Socialists count cost of 'success' in Basque poll

BY DAVID WHITE IN MADRID

MANY OF Spain's ruling Socialists would not have minded losing Sunday's election in the Basque country. In a region where most people vote for local parties, all of which favour more home rule, staying in second position would arguably have created an easier climate for post-election talks. It was not to be. Surprisingly, no party gained even a quarter of the seats in the 75-member parliament. The Socialists, who did no more than hold their ground, in fact losing one of their previous 19 seats, found themselves in the lead although with fewer votes than the defeated Basque Nationalist Party (PNV).

They are now confronted with two awkward realities. One is that the Basque parties, lumped together, command an even stronger majority than before. The other is that the Socialists now have to take the initiative to try to form a government in Vitoria, the regional capital. Mr Jose Maria ("Txiki") Benegas, 38, the Socialist leader in the region, has a tough task. In order to command a safe majority and not risk being upset by the extreme-minded Euzkadi Nationalist Party—which has in the past snubbed the parliament but may now decide to take up its seats—the Socialists need at least two coalition partners. Political circles yesterday were buzzing with possible permutations. The parliament is in any case not expected to vote in a new Lehendakari or Basque president before mid-January and an impasse would mean yet another election. The Basque political scene, profoundly marked by long terrorist conflict, is increasingly difficult to make sense of. The Socialists, relying on the population of non-Basque origin for their support and making few inroads among the Basques themselves, have the bulk of the region against them. But the factions of Basque nationalists, although they jointly dominate the scene and share some main objectives, are afflicted by mutual loathing. Three main changes have taken place in this third Basque election since 1984. The biggest is the split into two of the PNV, up to now the backbone of political life in the area. Since it began in the late 19th century, the party has alternated between two tendencies—the drive towards independence and the making of pacts. Its pragmatic agreements, such as the one it enjoyed with the Socialists from early 1985 until now, always got it into trouble internally. Meanwhile, even before the real negotiations start, next summer's municipal elections, in which the PNV's real power base will be challenged, are already looming in party minds.

SEATS IN BASQUE PARLIAMENT table with columns for Party, 1986, and 1984

US and Spanish officials meet over base cuts

BY OUR MADRID CORRESPONDENT

US and Spanish negotiators sat down yesterday to a third round of talks on Madrid's demands for cutbacks in US personnel at jointly-used Spanish bases with a gap between the two sides' positions still wide. The series of meetings began in July in the wake of the Socialist Government's successful referendum campaign to keep Spain in Nato, during which it pledged a reduction in the unpopular US presence. Madrid is threatening to

denounce its bilateral defence agreement with the US if record is not reached by next November. The current agreement, which covers the presence of up to 2,500 military personnel, mainly at three air bases and the Rota naval base, expires the following year. The US is prepared to remove lower-level personnel but is otherwise insisting that any missions no longer to be carried out by US forces should be fully taken over by Spanish forces.

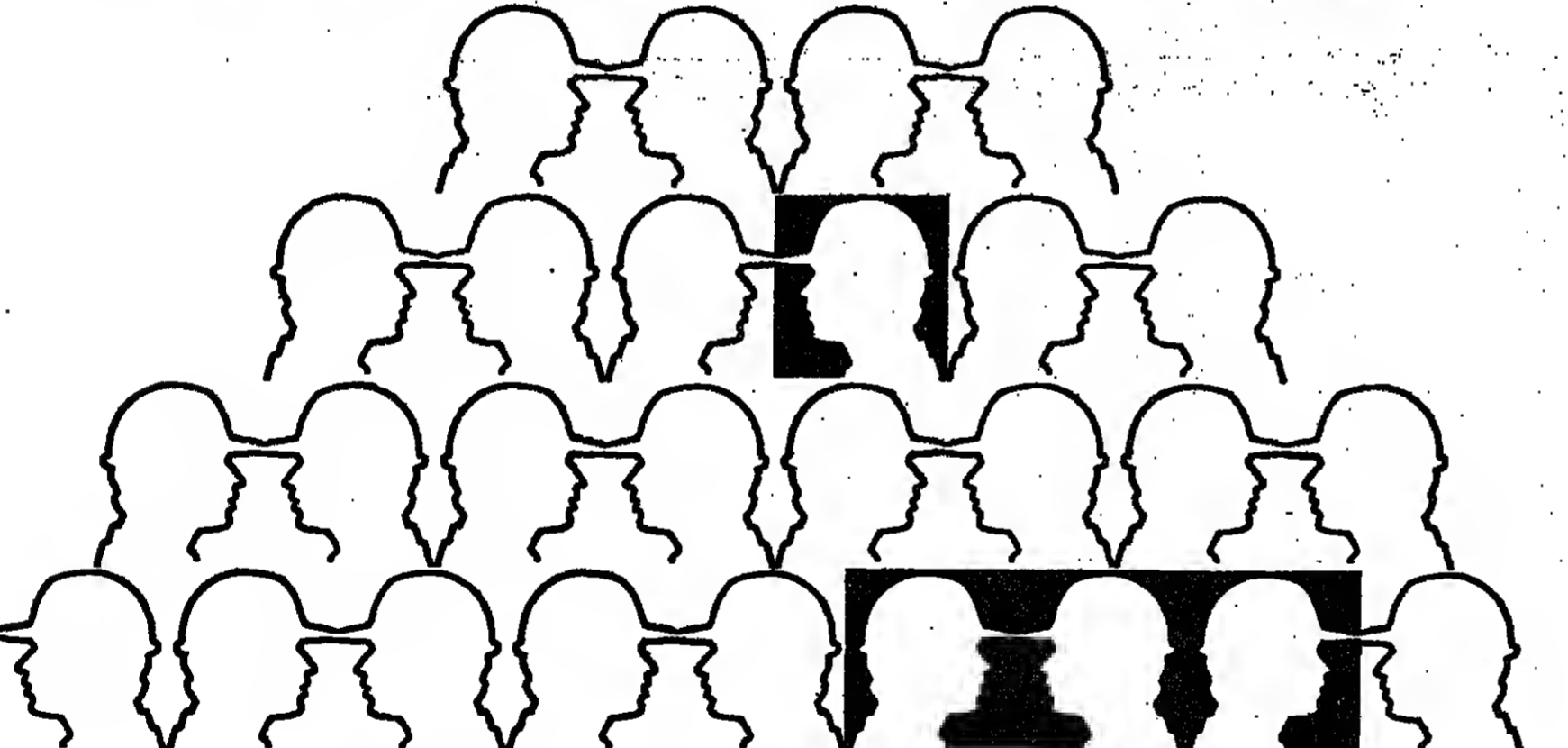
Polish unions call for new economic priorities

BY CHRISTOPHER SOBINSKI IN WARSAW

POLAND'S unions have criticised the Government's economic plans until 1990 for continuing to give priority to capital spending on coal and energy production at the expense of consumer goods output, welfare services and industrial modernisation. The unions, which claim a membership of 7m after being set up in 1982 to replace the banned Solidarity movement, coded a five-day conference in Warsaw at the weekend. Mr Alfred Miodowicz was re-elected chairman, but more than a third of the delegates ignored an open endorsement for him by Gen Wojciech Jaruzelski and voted against or abstained in the secret ballot. Mr Miodowicz last summer

joined the Communist Party Politburo in a move which was criticised by many of the new unionists. The discontent also surfaced in writing for a deputy chairman, Stanislaw Bar, the construction workers' leader won the poll after outspokenly criticising the Government's housing policies as inadequate, during the Congress. The Congress also condemned Government plans to freeze real wage growth over the next four years and instead called for increased consumer goods output. The annual 2 per cent growth in food production was also labelled insufficient. The Congress resolution commits the movement to demand changes in Government agricultural policy.

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Communist the copy ship desi... Mac set fresh with... US and Spanish officials meet over base cuts... Polish unions call for new economic priorities

EUROPEAN NEWS

Community bans the copying of chip designs

By William Dawkins in Brussels

EEC trade ministers yesterday agreed to provide legal protection against unauthorised copying of integrated circuit chip designs in the community. The measure, passed with unusual speed at a meeting in Brussels, will also safeguard EEC microchip exports to the US, an important element in Western Europe's \$3.6bn (\$2.5bn) electronics sales to the US at the latest industry estimate in 1984. The decision came in direct response to a US threat to withhold copyright protection for imported microchips from the end of next year unless its own integrated circuit producers are offered anti-copying safeguards in foreign markets. US electronics exports to the community were estimated at \$11bn two years ago. The decision formed part of a package of measures to open up the EEC's internal market on a broad front. The community's 12 states will now be required to fall into line with US microchip design protection practice. That was embodied in the US Semiconductor Chip Protection Act, passed two years ago, which provided for the first time copying integrated circuit layouts.

Greece to urge EEC action on trade loan

By Andriana Ierodiscou

DR ANDREAS PAPANDEOU, the Greek Prime Minister, is to raise the subject of the snagged second tranche of a European Community balance of payments support loan to Greece at this week's EEC summit meeting in London, according to officials in Athens. Despite the Greek Government's expectations the second tranche of the Ecu 1.75bn loan was not approved at a meeting of the EEC monetary committee in Brussels last week. Instead, EEC member states reportedly criticised Athens both for its economic performance in 1986 and for being out of step with the Community on issues such as Syria's involvement in terrorism.

The EEC loan was granted in the autumn of 1985, on the basis of a two year economic stabilisation programme introduced by Greece's Socialist Government. Greek officials still believe that the second tranche will be approved after some difficult negotiations and delay.

Greek seamen around the world launched a 48-hour strike for higher pay yesterday in defiance of the Government's austerity incomes policy for 1986 and 1987.

Commission steps up campaign over new programmes plans

By Quentin Peel in Brussels

The European Commission is stepping up a campaign against EEC member states for emasculating its plans for new Community rules and programmes - especially those aimed at making the EEC more relevant to its citizens. Twice in as many days, the Commission has exercised its ultimate negative sanction of withdrawing a proposal rather than see it emerge radically altered by the negotiations of the 12 member states.

At least one of those plans - the Erasmus programme to promote student exchanges - may well now be raised at this week's EEC summit in London to prevent its complete disappearance.

The Commission first exercised its new determination - long threatened but hitherto unused - on a proposal under negotiation last week for a better system of duty-free allowances for EEC travellers.

Lord Cockfield, the British Commissioner responsible for the internal market, refused to accept a compromise put forward by the British Government from the chair and stunned the serried ranks of national negotiators by withdrawing his own proposal. The move means they no longer have any plan to discuss.

The original would have provided a formal legal basis for duty-free shops in the EEC and have required them to ensure that travellers did not exceed their duty-free limits in purchase - thus removing any need to control them at customs posts. It was linked to a second directive increasing the limits.

The compromise rejected the idea of shops enforcing the limits as impracticable and inserted fresh deals for a variety of national interests.

The same objection was raised on Friday by Mr Manuel Marin, the Spanish Commissioner responsible for social affairs and education, over the Erasmus programme. He simply took his proposal off the education ministers' table, leaving them nothing to talk about.

German employers reject union's call on working hours

By Peter Bruce in Bonn

A FIERCE struggle between unions and employers over working hours in West Germany's huge metal-working industry next year is rapidly shaping up, with the employers yesterday rejecting out of hand union demands that a 35-hour week forms part of the 1987 pay round negotiations.

Mr Werner Stumpfe, president of Gesamtmetall, the employers' organisation which also embraces the motor industry, said yesterday he totally rejected the claim - fixed at the weekend by IG Metall, the metalworker's union, for a 35-hour working week with full pay.

He said instead that the employers were prepared to discuss pay issues only.

Talks actually begin in Düsseldorf on December 12, and Mr Stumpfe also warned that last week's gloomy 1987 economic forecast by the Government-appointed panel of "five wise men" - which predicted growth of about 2.2 per cent - meant that the employers' room for manoeuvre would be limited.

He forecast "hard argument" if IG Metall were to stick to its working time demands.

"We will not tolerate the unions choosing the direction, with the em-

ployers only being able to play a part in deciding how far the trade would travel," he said.

He was not against discussing a cut in working hours, Mr Stumpfe said, "but 1987 is not the right time." IG Metall, however, is Europe's biggest trade union, and it brought the West German motor industry to a standstill for seven weeks in the summer of 1984 in strikes designed to get the working week cut from 40 hours to 35 hours.

It succeeded then in winning a cut to an average 38.5 hours, but the union leadership has committed itself to reintroducing the issue next year.

The union's new leader, Mr Franz Steinkühler, organised the 1984 strike and is convinced that shorter working hours are the best way to cut unemployment.

He has to fight in the unions to be allowed to discuss "flexible" working practices, but these are so restrictive that they are unlikely to interest employers.

Mr Steinkühler has a long record of leading strikes not directly concerned with pay - unusual for a West German trade union - and he has done little to dampen talk of strike action accompanying the 1987 negotiations.

Swiss expelled Soviet suspect

SWITZERLAND expelled a Soviet diplomat for spying last July but did not publicise the move, partly to avoid affecting a trip to Moscow by Mr Pierre Aubert, Foreign Minister, a few weeks later, the Government said yesterday, Reuter reports from Bern.

In a written reply to a parliamentary question, the Government said Mr Aubert's trip was one of the reasons why it had departed from its usual practice of making cases of alleged spying public.

Europe urged to link up telecoms

WESTERN Europe must tear down barriers between national telecommunications systems to avoid its economy falling behind the US and Japan, a group of industrialists said yesterday, Reuter reports from Stockholm. The Roundtable of European Industrialists said in a report that construction of good trans-European telephone and data communication networks was as critical as the building of railways a century ago.

Poles may revive ties with Israelis

POLAND might restore full diplomatic relations with Israel, Mr Marian Orzechowski, Poland's Foreign Minister said in an interview published yesterday, Reuter reports from Copenhagen. Mr Orzechowski was quoted by the Danish newspaper Berlingske Tidende as saying that Israel had set up a representation office in Warsaw. He emphasised that the Polish-Israel arrangement should not be seen as formal diplomatic relations.

Chirac set for fresh clash with students

By David Housego in Paris

THE offer by Mr Jacques Chirac, the French Prime Minister, of fresh consultations over the Government's controversial university legislation appeared to have failed yesterday as students renewed their demonstrations.

About 5,000 students marched through Paris's university quarter calling for the resignation of the Minister of Education and shouting slogans that included: "Chirac, demagogue, the students will have your skin."

Afterwards a small number cheered President Mitterrand as he left the Musée d'Orsay after the official inauguration of the new museum - thus giving a clear anti-government and pro-Socialist colour to the demonstrations.

Socialist leaders lent their support to the students in demanding the withdrawal of the bill. Mr Louis Mermuz, the former Socialist President of the National Assembly, described Mr Chirac's concessions in his broadcast on Sunday as a smokescreen and said the Government was sincerely seeking to gain time. The students are protesting against provisions in the bill which provide for increased selection on entry to university and higher admission charges.

In his broadcast Mr Chirac offered consultations on all the points in dispute - admission procedures, increased registration fees and national recognition of university diplomas - while refusing to withdraw the bill. The students now appear to be focusing their protest on a complete withdrawal.

Universities in Paris remained on strike with students deciding at meetings to go ahead with a big protest march planned for Thursday. In some universities students have organised a sit-in. The situation appeared more confused in the lycées or secondary schools where some pupils continued with their work while others were on strike.

Mr Chirac's concessions on Sunday might risk displeasing some of his own majority who now see the bill as robbed of content. But though Mr Chirac tried to appear conciliatory in his remarks, the message did not seem to get through to the students.

Miss Isabelle Thomas, who has emerged as the student leader, said the Prime Minister seemed to take the students for imbeciles.

Aids fears exaggerated says Nobel scientist

A WINNER of the 1984 Nobel prize for medicine claims the seriousness of Aids is overrated compared with other diseases that kill millions in the Third World, Reuter reports from Copenhagen.

Mr Niels Jerne, 74, an immunologist, told the Danish railway journal, Ud og Se: "We have lived with diseases like malaria and sleeping sickness in Africa, which several million people die from every year."

"But because these diseases no longer occur in Europe or North America, the effort made to get them under control is not very great."

"I predict that a method of curing and preventing the spread of Aids will be found in the next five years," he says. "I cannot see it is the frightful threat it is made out to be but it is interesting to write about in the newspapers because it can be linked with homosexuality."

"The number of people who have actually died of Aids is tiny - less than those who die in road accidents. People say that in 10 years it will be 100,000, then a million but I do not believe it will go that way."

"This Aids-mania is exaggerated," said Mr Jerne, who was born in Britain. He won the Nobel prize for his work on the body's defence system. It is this system that is broken down by Aids (Acquired Immune Deficiency Syndrome), which can be transmitted by blood transfusions and sexual contact.

S Africa pull-out

Novo, the Danish enzymes and pharmaceuticals manufacturer, is to sell its South African enzymes sales subsidiary to local management, Hilary Barnes reports from Copenhagen.

Libya pays \$16m

A payment of \$16m (£11.6m) by Libya has completed the second refinancing of the International Fund for Agricultural Development, the United Nations agency devoted to aiding small farmers in the Third World, John Wyles reports from Rome.

Arms control priority

The chief US negotiator, Max Kampelman, said yesterday he would emphasise the issue of verification at special arms control talks starting in Geneva today, Reuter reports.

Malta violence blame

Malta police yesterday blamed Nationalist Party supporters for violent clashes on Sunday with supporters of Premier Dr Carmelo Mizud Bonnici. More than 20 people were hurt, Geoffrey Grima reports from Valletta.

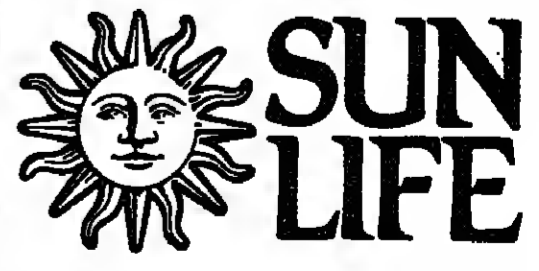
Wind power boost

The European Commission said yesterday it would co-finance the construction of three large windmills in Britain, Denmark and Spain. It would provide about a third of the money for the \$21m (£14.6m) project, AP reports from Brussels. The windmills will be built on the North Sea coast of Denmark, in Galicia, Spain, and in Kent, England. They are scheduled to become operational in 1988.



A SHINING EXAMPLE OF BRITAIN'S INVESTMENT SKILLS

There's a new sparkle in Sun Life's Stock Exchange and overseas share dealings these days. It's reflected in the success of Sun Life Trust Management Limited, for instance. We had two unit trusts in the top 6 performers over the year to September, 1986. No less than 4, in fact, among the top two dozen* That's more than any other company. When you consider we launched our unit trust business in 1985, and by August this year had actual gross sales of £84.9m, you'll see why we talk about hot performance. But it's just part of our drive into new financial markets. A drive that is helping to expand Sun Life from a life and pensions business into a major, versatile, investment house. Our fund management company, Sun Life Investment Management Services Limited (SILMS), now manages a portfolio of over £4bn. And that's more than Britain's two largest unit trust companies put together. Nowadays, we handle life assurance funds, individual and group pension funds, unit-linked funds, unit trusts, individual portfolios and segregated funds. We know how to offer our clients the benefits of the world's stock exchanges, and we do it with panache. Interested in how Sun Life throw light into any portfolio? Ring our Factline, 01-606 7788, or write to Tony Setchell, Sun Life Assurance Society plc, 107 Cheapside, London EC2V 6DU.



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OVERSEAS NEWS

Minister rejects non-racial Natal legislature

BY ANTHONY ROBINSON IN JOHANNESBURG
COMPLEX PLANS for a non-racial legislature for Natal which would scrap the present division between white Natal and the black KwaZulu homeland and create a single legislature for the province have been rejected by the provincial leader...

Whitlam says MI5 spy book is in the public interest

BY CHRIS SHERWELL IN SYDNEY

BRITAIN'S BID to suppress the controversial memoirs of a former MI5 spy took another knock yesterday as one of Australia's best known public figures challenged the official UK and Australian view and urged that the exposé be published.

Justice Philip Powell in the New South Wales Supreme Court. Britain is seeking a permanent injunction to prevent Heinemann Australia publishing the memoirs of Mr Peter Wright.

whether the defence should see confidential British documents related to the case. His comments led some observers to believe he would allow some documents, or perhaps parts of them, to be handed over.

The former Prime Minister was otherwise a confident witness for the defence, as those who knew him expected. He sounded studiously bored when he said he had read Mr Wright's book.

officials and parliamentarians should know how MI5 had acted and that their own services were not allowed to act in the same way.

As for Sir Roger Hollis, the former MI5 head who was involved in setting up Asa in 1948-49, Mr Whitlam said that if he was a Soviet "mole" that had to be known, whether his influence was no longer operative or not.

Row over EEC West Bank boost

BY ANDREW WHITLEY IN JERUSALEM

A DISPUTE between Israel and the European Community over the marketing of goods from the Israeli-occupied territories has put in jeopardy the preferential treatment West Bank and Gazan exports are due to receive in the Common Market from January 1.

What Community officials are, above all, concerned about is that any understanding permitting Israel to handle West Bank and Gazan exports could be interpreted, by extension, as tacit recognition of Israeli sovereignty over the region.

discriminated against their goods. The aim of the European Commission initiative, announced last October, was to end the anomalous treatment of the occupied territories.

Beirut camps pounded by Amal tanks

BY CARLA RAPOPORT IN TOKYO

TANKS pounded Palestinian refugee camps in Beirut yesterday while south Lebanon was paralysed by a general strike, Reuters reports.

Japanese mine town faces job losses with calm fatalism

BY CARLA RAPOPORT IN TOKYO

WESTERN-STYLE unemployment has arrived in Japan, but it is unemployment with a twist. Japan intends to reduce coal production by a third over the next five years, putting more than 10,000 of the industry's 25,000 workers out of a job, he says.

Three leading Japanese steel companies, Nippon Steel, Asahi Steel and Kobe Steel, yesterday began to implement the first layoffs in the industry since the Second World War.



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Japan's soaring land prices spark call for tax change

BY IAN RODGER IN TOKYO

A HIGH-POWERED advisory committee has called on the Japanese Government to raise taxes on farmland in urban areas and take other "far reaching" steps to meet the urgent need for more land for housing.

pieces of land in the Ginza sold recently for 210 million yen (\$110,000) per square foot. Yesterday's interim report by a committee on restructuring the Japanese economy was expected to concentrate on all the thorns that have dominated the political scene in Japan this year.

Vertical text on the right edge of the page, partially cut off. Includes phrases like "Compa", "the fastest-g", "company in", "ever to reach", "The key", "an unwaver", "and custom", "When", "a first", "site t".



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Seven oil groups bid in Indian offshore round

BY JOHN ELLIOTT IN NEW DELHI

SEVEN international oil companies including British Petroleum and Shell from the UK yesterday lodged bids with the Indian Government for surveying and exploration contracts in the country's third round of offshore tenders.

The others are Chevron, Amoco, and Albion of the US, Broken Hill (BHP) of Australia, and International Petroleum Corporation of Dubai.

The companies have lodged seismic survey and exploration bids for blocks with production-sharing of India's west and east coasts. The Government hopes to start consultations in January so that contracts can be awarded by next April.

This is the best response India has had in its three rounds and was described last night by Mr G. V. Ramakrishna, Secretary of the petroleum ministry, as "satisfactory."

No company bid in the second round in 1983. Only Chevron came to an agreement in the first round in 1982 and it withdrew early last year after sinking three dry wells costing \$33m (£22.6m).

This time the Government offered the companies tax and other concessions in the hope that these, plus the gradual opening up of the Indian economy would be sufficient incentive to attract international bids.

India urgently needs major new oil discoveries to boost its domestic production which has almost levelled off at around 30m tonnes a year, after several years of rapid growth in the

EEC puts financial power into windmills

By William Dawkins in Brussels

THE EEC is backing three contracts worth a total of Ecu 20m (£14m) to build large power generating windmills in Britain, Denmark and Spain.

The European Commission announced yesterday that it will put forward a third of the cost of the projects, the leading contractors for which will be the main electricity utilities in the countries concerned. The Central Electricity Generating Board in Britain, Spain's Asinca and Denmark's Elsam.

Design and construction is expected to be sub-contracted to small and medium sized companies.

The smallest of the wind turbines will be built at a cost of £1m at Richborough in Kent in the UK. It will be completed at the end of 1988 and is capable of producing 1 Mw.

Cabo Villana in Galicia is to get a 1.2 Mw windmill while the largest 2 Mw machine is going to the Danish port of Esbjerg.

Co-sponsors for the three projects are the Danish National Wind Programme and its equivalents in the UK and Spain.

Bonn seeks fresh Airbus financing

BY DAVID MARSH IN BONN

THE WEST German government is exploring ways of bringing big domestic companies such as Siemens and Daimler Benz into the financing of the European Airbus airliner manufacturing programme.

To make private sector participation more attractive, the Bonn government is proposing that it formally take over some of the debts of Deutsche Airbus, the subsidiary of Messerschmitt Boelkow Blohm (MBB) which is the German partner in the Airbus consortium.

Government officials say that discussions with potential industrial partners in Airbus have already begun. They reflect the Bonn government's general aim to shift the financing of the four-nation consortium more towards private companies and away from the public sector.

The Government has made no secret in recent weeks of its worry over the mounting costs of the Airbus programme. Airbus sales of wide-body air-

liners have been hard hit by severe competition from Boeing of the US.

Airbus—whose other shareholders are Aerospatiale of France, British Aerospace and Casa of Spain—is also seeking more than \$50n (£2.1bn) in cash pledges from the European governments to back its proposed A 330 and A 340 programmes to build new airliners for the 1990s.

Increasing Deutsche Airbus' share of Airbus development financing costs—which are at

present borne 85-90 per cent by the Bonn government—would represent one way of increasing the stake of private industry in the airliner venture.

Additionally, the Government believes that outside companies, some of which are already involved as shareholders in MBB, could also take a direct stake in Airbus financing. Apart from Daimler and Siemens, other candidates include Bosch, BMW and the other big German aerospace group, Dornier.

C & W runs into more criticism in Japan

By Ian Rodger in Tokyo

THE involvement of Cable and Wireless of the UK in the management of a proposed competing telecommunications utility in Japan has come in for further criticism.

Mr Masuo Maekawa, president of Kokusai Denshin Denwa (KDD), Japan's international telecommunications utility, said yesterday there was no difficulty in his view about foreign companies taking an equity stake in a telecommunication undertaking "but the question is whether a foreign company can be involved in the operations."

C & W is a leading partner along with the Japanese trading group, C. Itoh, in a consortium that is bidding for the franchise to operate Japan's second international telecom utility. A decision between two consortia competing for the franchise is expected soon.

Mr Maekawa, a former Bank of Japan governor, pointed out that the telecommunications business was not entirely free in any country and Japan was no exception. His view was that the extent to which foreign companies should be allowed to participate in such ventures in Japan "should be decided by the Minister of Posts."

McDonnell near pledge to develop new jet

BY MICHAEL DONNE, AEROSPACE CORRESPONDENT

MCDONNELL DOUGLAS, the US airliner manufacturer, is on the verge of a formal commitment to develop its MD-11 medium-to-long-range airliner. The aircraft will replace its DC-10 tri-jet.

Between now and the end of this year, several airlines in the US and elsewhere, are expected to announce decisions to buy the tri-jet MD-11, subject to McDonnell Douglas going ahead with the aircraft.

British Caledonian, Swissair and American Airlines of the US are believed to be close to decisions. None of these operators, however, is prepared to commit on their re-equipment plans.

A formal commitment by McDonnell Douglas to develop and produce the MD11 would immediately put considerable pressure on the European Airbus Industries consortium formally to launch its own A-340 four-engine long-range version of the Airbus. This aircraft is being discussed with airlines worldwide.

It would also oblige Boeing to consider seriously whether to commit its rival version of the 747 Jumbo jet, the Advanced Short Body model, to production, to avoid being deprived of orders from airlines seeking long-range airliners with payloads below those of conventional Jumbo jets.

The aim of all these aircraft—MD-11, A-340 and ASB 747—is to cater for airlines with routes over 8,000 miles non-stop where traffic densities do not justify using bigger conventional Boeing 747 Jumbos that can seat up to 400 passengers or more.

The average payload would be about 330 passengers.

Mr Louis F. Harrington, vice president and general manager for advanced products for the McDonnell Douglas Division of McDonnell Douglas, said recently that a formal commitment to launch the MD-11 would be likely before the end of this year.

He said the McDonnell Dou-

glas company was putting substantial cash and engineering resources behind the MD-11 venture.

The company headed firm commitments from at least three airlines, including one US and the others overseas, for a total of about 20 aircraft, to justify launching the aircraft.

The new Dutch Fokker F-100 twin-engine 100-seat jet airliner, powered by Rolls-Royce Tay turbo-jet engines has made its maiden flight from Schiphol Airport, Amsterdam. The flight lasted two hours.

Airflights which have ordered the F-100 with Tay engines include KLM of Holland, Swissair and US Air.

West Germans, Hungarians in VCR joint venture

BY LESLIE COLT IN BERLIN

EASTERN EUROPE'S first joint venture with a western company to produce colour TV sets and video recorders (VCRs) has been agreed on between Standard Elektrik Lorenz (SEL) of West Germany and Hungary's most innovative retailer, Skala-Coop.

SEL, which is a subsidiary of IFF, said the joint venture will eventually produce 100,000 colour TVs and VCRs annually in Hungary.

The output, estimated to be worth about DM 65m (£22.4m) a year, will be sold in Hungary and, it is hoped, exported to other east European countries. About three-quarters of production is to consist of TV sets.

SEL is taking a 35 per cent stake in the joint company by providing equipment and technology. It will be the largest manufacturing joint venture in Hungary, which, like other east European countries, is anxious to co-operate with western manufacturers.

SEL will deliver components in kit form which are to be assembled at a rebuilt plant by Skala-Coop and sold in its department stores and franchised outlets throughout Hungary.

The first colour TV sets are expected to be available in Hungary in the next few weeks and the level of local content such as printed circuit boards is to be progressively increased in the coming years.

Under the Hungarian joint venture law, the joint company will enjoy a five-year tax holiday and SEL will be allowed to convert its income in Hungarian forints from the venture into hard currency.

Some of the output of the Hungarian plant could be exported to the West, IFF noted, but added that it wants to obtain entry to other East European markets in addition to gaining about 10 per cent of Hungarian sales of colour TV sets.

Oil price fall 'fails to damage East-West trade'

BY WILLIAM DULLFORCE IN GENEVA

EAST-WEST trade in the first half of this year held up better than expected after the collapse in the price of crude oil, the UN Economic Commission for Europe (ECE) reports in the latest edition of its Economic Bulletin for Europe.

Soviet exports to the west fell by only 7 per cent in value, according to Soviet statistics, while comparable western figures show an increase of 5 per cent.

Soviet trade was expected to be badly affected by the slump in the oil price, since 80 per cent of its earnings derive from crude oil and from fuels with prices linked to it.

The ECE has difficulties in reconciling eastern and western statistics but it does pinpoint trends. The ECE covers western and eastern Europe, including the Soviet Union and North America.

The relatively favourable outcome for Soviet exports is attributed to an increase from the depressed level of 1985 in

shipments of oil and oil products and to a rebound in natural gas sales.

Lower grain purchases from abroad following a better home harvest were largely responsible for the 16 per cent decline in the value of Soviet imports in the first half, but the value stated in US dollars, remained stable.

Preliminary data for the first quarter suggest that Soviet imports of engineering goods from the west also continued to decline in spite of quickening in the pace of Soviet domestic investment.

For 1986 as a whole, the ECE expects the Soviet current account surplus with the market economies to double to around \$2bn (£1.4bn). In contrast, the current account balance of eastern Europe as a whole with the market economies is likely to move into a deficit of over \$1bn this year compared with a \$2bn surplus last year.

Philips, AT&T plan US medical systems link-up

BY LAURA BAUN IN AMSTERDAM

PHILIPS, the Dutch electronics group and AT & T, the US telecommunications giant, are planning jointly to market medical systems, involving radiology and other diagnostic imaging equipment in the US.

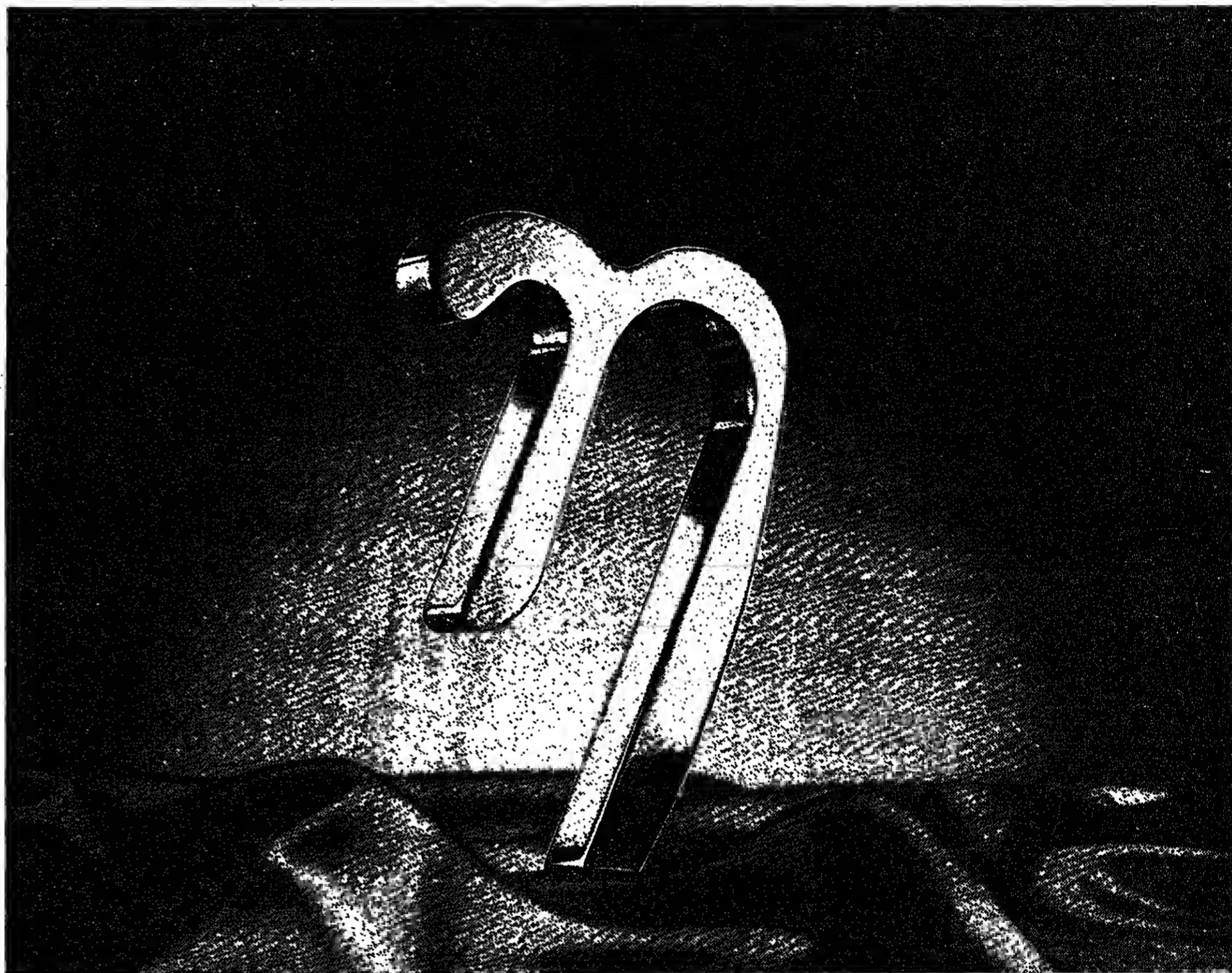
The aim is to provide complete systems by combining the forces of Philips' Medical Systems unit which is a world leader in diagnostic imaging and radiation therapy equipment, with AT & T, which is a world leader in communications and data management.

The two companies, which have a joint venture in public telecommunications, hope to achieve better economies of scale in the US health-care industry which is slowing after years of strong growth. Philips

also faces stiffer competition because of the lower dollar which has made US-made products cheaper.

The two companies' sales forces will co-operate in marketing systems that digitally generate a body image and then store, retrieve and communicate it. The products will include digital-image generation systems, fibre optic networks and data bases, optical (laser-read) storage archives and video-screen diagnosis.

In the US, the product line will be known as "Commview" and outside the US as "Marcom," which stands for Philips medical archiving and communications systems, and will be sold through Philips.



It's worth over £2.1 million

In Energy Efficiency Year what could be more appropriate than news of major energy savings and greater productivity in British industry? Well, this year 28 UK companies between them have saved nearly £1 million on energy and £2.1 million in all by switching to electricity, with an average payback of less than two years.

As if that weren't reward enough, each one also received a regional PEP (Power for Efficiency and Productivity) Award—the Electricity Supply Industry's way of recognizing companies who have made more effective use of energy and reaped major benefits.

Productivity up with 80% energy cost saving

Now congratulations go to the two national winners: Lennox Foundry Limited, who have reduced energy costs by 80% and produce better castings faster since switching from oil-fired to electric melting. And Peugeot Talbot's Ryton car plant, where electric infra-red curing is helping to achieve lower warranty claims and higher standards of finish than in any other Peugeot factory in Europe. Overall savings repaid Peugeot's investment in just four months.

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AMERICAN NEWS

Reagan budget aims to meet deficit target

BY STEWART FLEMING, US EDITOR IN WASHINGTON

PRESIDENT Ronald Reagan will submit to Congress early next year a proposed federal budget which will meet the 1988 budget deficit target of \$108bn laid down in the Gramm-Rudman-Hollings budget law...

Argentina begins talks on fresh IMF loan

By Tim Coone in Buenos Aires

TALKS between the Argentinian Government and the International Monetary Fund were due to begin in Washington yesterday over a new standby loan and compensatory finance to meet trade and debt obligations up to the end of 1987.

The Argentinian negotiating team is led by Mr Jose Luis Machinea, the central bank president, and Mr Mario Brodersohn, the Finance Minister.

A total of \$1.55bn is being sought by Argentina—\$1.2bn as a new standby loan and \$350m as compensatory finance for the heavy fall in export earnings.

Persistent low world prices for grains and beef, Argentina's main exports, have caused serious concern within the Government for the country's long-term economic recovery.

Foreign exchange earnings are expected to be some \$1.5bn down on 1985, causing a contraction in the visible trade surplus to less than \$2bn this year.

This greatly constricts Argentina's capacity to meet payments on its \$500bn foreign debt, the Government says, and has prompted its negotiators to push harder for more favourable terms in its debt refinancing packages.

The recent \$12bn Mexican refinancing package, in which further finance will be forthcoming if the oil price falls below \$9 per barrel, is being seen as a useful precedent by the Argentinians to argue for a similar "trigger" clause in its own agreement with the IMF.

Most critical of all to the success of the negotiations will be whether the IMF and the foreign banks are prepared to accept Argentinian growth estimates of some 5 per cent for 1987, which will have important implications for both the fiscal deficit and import levels.

The Government is going into an election year and has stated that it is only prepared to negotiate a debt restructuring programme on the basis of a coherent policy platform.

Charles Hodgson reports from New York on the long-running dispute at USX War of attrition with steel industry unions

INDUSTRIAL relations in the US steel industry have come to long since a scorching July day in 1982, when nine strikers and seven Pinkerton agents were shot dead in a running gun battle outside Andrew Carnegie's Homestead steel works near Pittsburgh.

But the strike of USX, the nation's largest steelmaker which in its former incarnation as US Steel bought out Carnegie in 1901, has quietly become the longest running dispute in the history of the troubled US steel industry.

Talks to end the stoppage, which began on August 1, broke down at the end of last month. With no date set for a resumption of negotiations between USX and the United Steelworkers of America, the dispute looks set to drag on well into the New Year.

It has halted production at all USX plants and idled 22,000 workers in eight states. At issue is not only a new contract cutting wages and reducing benefits—concessions that the union has already accepted at USX's major rivals—but also the company's insistence that it should be allowed to subcontract more work to outside plants.

USX is standing firm on subcontracting, which has cost the union job, despite agreement by its competitors to restrict outside work in their negotiations with the steelworkers.

The irony of the strike is that it has so far had little effect either on the industry or on the US economy. In 1985, when steelworkers last walked out in a major dispute, a million blue-collar workers across the US were idled amid fears of a national recession. It took a Supreme Court order to get the steelmen back to work after four months.

The apparent lack of concern over the present dispute reflects not only the diminished role that falling demand and cheap imports have forced on the once all-powerful steel giants, but also the huge overcapacity now burdening the industry.

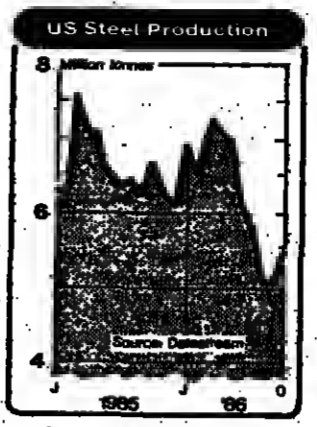
USX's main rivals, LTV Steel, Bethlehem, Inland, National and Armco, have moved swiftly to plug the gap left by the stoppage (which the company decries as a strike) by the unions as a lockout, putting on extra shifts to boost production. Output across the industry, which had been running at 6.5m tonnes in July and which slipped to 5.4m tonnes in August, the first month of the strike, rose to 5.6m by September.

Capacity used in the industry fell in 51 per cent in the first week of the strike from 60 per cent in the week before. By the middle of November it was back up to 57 per cent.

But the eagerly anticipated benefits for USX's competitors from their rival's problems have not materialised.

USX, which controls about one fifth of the domestic market, had stockpiled in anticipation of the walkout. Those stocks only started to run out in the past few weeks. The company's clients had also seen the labour trouble brewing and laid in extra supplies. The last half of the year is traditionally a slower time for steel consumption and major customers such as the car and white goods industries have themselves suffered high stock levels and a downturn in demand.

The strike has proved extremely costly for USX, pushing it back \$183m into the red.



US Steel Production

In the third quarter after making a small profit in the previous three months, it is now putting the finishing touches to a major restructuring plan, designed to raise \$1bn, largely by spinning off its chemical operations and press oil assets, and the sale of its steel stockholding centres.

Pittsburgh-based USX has been the target of unwelcome takeover attention by Mr Carl Icahn, the New York corporate raider, whose \$92m offer, although now technically lapsed, has not yet been formally withdrawn.

The war of attrition with the unions has renewed fears that the company, whose former owner US Steel was so synonymous with the industry as to warrant the title Big Steel, might further reduce its commitment to steelmaking.

Under Mr David Roderick, its 63-year-old former US marine chairman, the once cocky US USX has become a more cautious underdog, under the shift away from steel into oil and gas, which came to account for half the group's \$19bn annual sales.

US Steel was forced to diversify to survive, hamstringed by outdated plant and production technology and faced with a dramatic increase in foreign competition and shifting patterns of demand for steel.

More than 110,000 workers have lost their jobs and 91 plants have been closed, cutting capacity from 95m tons a year to about 26m, during Mr Roderick's austere seven-year regime.

The uncertainty generated by the dramatic reshaping and the standoff with Mr Icahn has been aggravated by the strike. Signs of disaffection on the picket lines are likely to increase once workers' unemployment benefits begin running out in January and they have to get by on \$60 per week strike pay.

USX is clearly prepared for a long fight. Mr Roderick warned earlier this month that failure to reach a settlement by November might mean that plants remained closed until April or May.

Mr Bruce Johnston, the company's vice president, was even glozier, saying that the collapse of the talks put the company's second quarter orders at risk too. He warned the unions that the continued strike "heightens the risk involved in our commitment to steel."

The chief union negotiator, Mr James McGeehan, found an apt metaphor to describe the current state of relations with USX. Some progress had been made but major problems remained, he said: "We have run into a steel wall."

Sealing that wall could mean a further step by USX away from the industry it once dominated.

Canada Liberals set for resurgence in popularity

BY BERNARD SIMON IN TORONTO

CANADA'S Liberal Party, the main parliamentary opposition, is expected to enjoy a resurgence in public popularity over the next few months in the wake of the strong endorsement given at the weekend to the leadership of former prime minister Mr John Turner.

Delegates to a party convention in Ottawa overwhelmingly defeated a bid to review Mr Turner's position. This was launched by members who have been dissatisfied with his performance since the Liberals suffered a humiliating defeat in the September 1984 general election.

The 78 per cent vote in favour of Mr Turner was considerably higher than his supporters' most optimistic predictions.

The ruling Progressive Conservative Party, headed by Prime Minister Brian Mulroney, has three-quarters of the seats in the House of Commons and is not obliged to call an election for another three years. But the Tories, whose vacillating performance in office has disappointed many voters, are behind the Liberals in the opinion polls.

The ability of the Liberals to capitalise on Mr Turner's decisive victory will depend heavily on their ability to formulate a coherent policy platform.

UN close to bankruptcy, Secretary General warns

BY OUR UNITED NATIONS CORRESPONDENT

THE United Nations has been on the brink of bankruptcy for months and will enter 1987 with only \$10m in hand, substantially less than the funds needed for one week's operations, the secretary-general Mr Javier Perez de Cuellar said in a report to the General Assembly.

Identifying the US only as "the largest contributor," he said the main problem was its failure to pay about one-half of its UN assessment this year—about \$1.6bn. Unless national legislation were amended, this payment could well be the same order in 1987, he added.

The US Congress, in defiance of obligations imposed by the UN Charter, has severely restricted US Government payments to the organisation. Several other states also are in arrears.

France has pledged to help out by making its \$42.6m assessed contribution in the first week of the year. Britain, Canada and the Nordic countries also are expected to pay promptly as they did this year.

Mr Perez de Cuellar said economies he instituted had saved the UN \$67m this year and would have to be continued for a somewhat greater saving in 1987. Even so, it had been barely possible to meet obligations on time, including staff salaries, and there was the strong possibility of a sudden interruption of services.

Moscow 'not to seek Falkland fishing licence'

THE Soviet Union's fishing fleet will not seek licences from British authorities to fish around the Falkland Islands, according to Soviet officials, Tim Coone reports from Buenos Aires.

The signing of a bilateral fishing accord between Argentina and the Soviet Union earlier this year was one of the reasons cited by the British Government for announcing a 150-mile fisheries protection zone around the Falklands at the end of October. This is due to come into force on February 1 next year.

A senior official at the Soviet Embassy in Buenos Aires said the fishing agreement is within the framework of our bilateral commercial relations with Argentina.

Venezuelan private foreign debt deal under fire

BY JOSEPH MANN IN CARACAS

A GOVERNMENT proposal designed to help solve the Venezuelan private sector's long-standing foreign debt problems has come under attack from Venezuelan businessmen and politicians.

The proposal, made public about a week ago, calls for foreign exchange futures contracts for Venezuelan companies whose foreign debt has been declared "eligible" by the Government.

The plan covers about \$6.0bn in foreign debt, out of a total private sector foreign debt estimated at \$12-\$13bn. Foreign bankers have been pressing Venezuelan officials for some kind of private sector debt plan since a major devaluation of the currency in 1983.

A spokesman for a leading business group, Fedecameras, said the body had not been consulted on the debt proposal, and sent President Jaime Lusinchi its own plan. Press reports in Caracas said there were major disagreements in the cabinet over the debt scheme, which had not yet been formally approved by the Government.

Politicians from the ruling party, Democratic Action, and the main opposition group, the Christian Democrats, Copel party, expressed serious reservations about the plan. An important labour leader said that any debt scheme involving government subsidies for the private sector should be tied to capital repatriation.

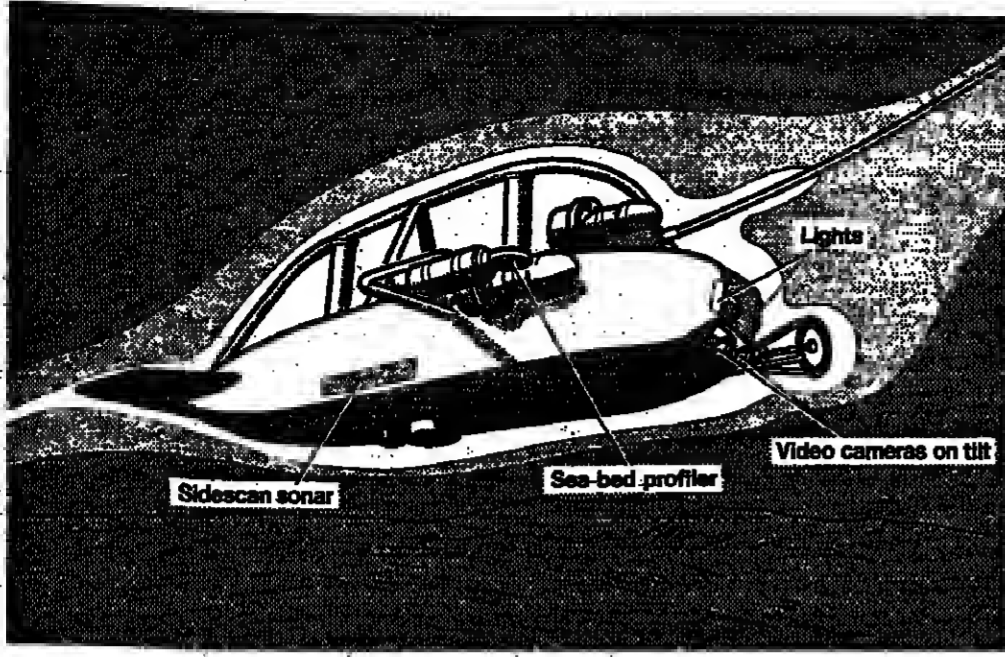
Banco di Sicilia advertisement with logo and text: 'Banco di Sicilia is pleased to announce the opening of its subsidiary Banco di Sicilia INTERNATIONAL S.A. 14, Avenue Marie Thérèse Luxembourg Tel. 454040-1 Telex 60563'.

Consorzio Di Credito Per Le Opere Pubbliche (Public Works Credit Consortium) notice of redemption with table of bond serial numbers and dates.

DELTA compsoft SOFTWARE advertisement: 'Britain's most popular intelligent database - requires no programming skills. Call 04868 25925 for brochure. POWER WITHOUT PROGRAMMING'.

THE BRIEFCASE WITH THE PERFECT MEMORY advertisement: 'Simply flip down the handle and the recording begins. Captures clear conversations on magnetic tape. Perfect memory. So easy you forget, now you can still have a perfect memory. For further information and a free demonstration contact: 01-408 0267 CCS COUNTER SPY...'

INVESTMENT BANKERS' FAVORITE advertisement for Lederer briefcases: 'The most traditional design in English cases. Crafted in finest Top Grain Leather, lined in dark Hunter Green. Solid brass hardware. File - 3 pockets. Spacious due to Raised Molded Edge. Simple. Distinctive. Conservative. Our version \$189.50. The original \$500. 18" x 12" x 4 3/4" The original \$239.50. The original \$550. Delivery charges additional. Add applicable sales tax. Amer. Exp. • Msster Charge • Visa. 613 Madison Ave. • 58th, N.Y.C. 10022, U.S.A. (212) 355-5515'.



Trawling for business with mechanical fish

A SOVIET submarine has run aground off the UK coast and locating it is a matter of priority for a team of Royal Navy technicians. Helping them, if any such incidents occur in the future, may be a large mechanical "fish" that is towed behind a survey ship.

Peter Marsh looks at a group of companies seeking to reduce their dependence on the oil industry.

RUMIC itself was set up three years ago by a group of engineers headed by Mr Roger Chapman, the managing director of the five-person concern initially worked mainly for the oil industry, reflecting Mr Chapman's own background. Prior to setting up RUMIC, he had worked in offshore maintenance for Vickers and had started another company, Subsea Surveys, which operated remote-controlled inspection vessels for oil companies.

Such a device is under development of RUMIC, a small engineering company in Barrow-in-Furness, Cumbria, UK. It promises to be able to inspect large tracts of ocean quickly and cheaply, by incorporating television and sonar sensor technology, and having the ability to be towed at speed or move slowly under its own power. The fish will be dragged behind a ship at the relatively high speed of 5 knots, all the time using sonar equipment to pick up information on nearby objects. If and when the scanners show anything of interest — such as a dark shadow that could indicate a submarine hull — engineers on the ship order the fish to swim away to obtain detailed images of the object using TV cameras.

While its TV cameras are switched on, the machine remains linked to the ship by an "umbilical cord". This acts as a conduit for signals sent between the fish and engineers on board the support vessel. The ship, however, slows to about half a knot, allowing the mechanical contraption beneath the waves to steer itself under power of its own thrusters. The cord lets the fish roam up to

500 metres either side of the ship. In this way, the towed system, which requires about £1.5m for further development, would combine both quick scanning of the oceans using sonar and detailed inspection using TV. Normally, these surveillance methods require separate underwater vessels.

Vista Ventures, a venture-capital organisation in London, has agreed to contribute some of the project's development costs. Other possible sponsors are the UK Energy Department's Offshore Supplies Office and Seifem, an offshore engineering company. The latter thinks the new device would help it in inspection of underwater pipelines.

Assuming the development goes ahead, work on the system may be shared by a group of about 15 companies in the Barrow area, many of which specialise in offshore engineering for the oil industry. As part of moves to diversify away from this sector into other areas of technology, the Barrow concern is considering joining forces in an informal consortium (see accompanying story).

Unity on north west frontier

A REDUCED dependence on the oil industry has become a central goal for a group of technology based companies in the Barrow area. The concerns have evolved mainly by people leaving Vickers' shipbuilding group and its offshore-engineering offshoots.

In recent months, the Barrow companies have considered forming themselves into a loose consortium, to be known as the Furness Technology Centre. This would bid for contracts on behalf of companies in the area. The plan has been devised by the companies in conjunction with Mr Malcolm Cross, chairman of the Furness Business Initiative, an enterprise agency in Barrow. Mr Cross says that the consortium would try to steer the concerns into areas of engineering away from oil-related work.

According to Mr Roger Chapman, managing director of Barrow-based RUMIC, the consortium could help some of the local companies to survive. The concerns suffer the

general disadvantage that, due to Barrow's geographical position in a remote corner of north west England, they are a long way from most of Britain's industrial centres.

Furness Underwater Engineering, the largest of the Vickers' spin-offs, was set up in 1979 and has had some success in moving into non-oil areas. The company, which two years ago was bought by Incheage, the trading group, has annual sales of £2m, 60 per cent of this for the oil business.

Mr Peter Rodshaw, managing director, says the company has had to retreat its market focus into areas away from offshore engineering. It is working with British Nuclear Fuels at Sellafield, Cumbria, on the design of reprocessing equipment. The company is moving into design work, for example by doing studies on submarines for Vickers Shipbuilding and Engineering, the private company which runs the (formerly state-owned) submarine construction yards in Barrow.

Mr Marcus Cardow, managing director of System Technologies, another Vickers offshoot, says that about two years ago, anticipating the recent fall in oil prices, he "mentally diversified" away from aiming his activities only at the oil industry. His company is working on a number of non oil-related projects, including graphics systems for computers and electronic devices for the car industry.

Orcina, a company in Ulverston, near Barrow, set up by Mr Mike Isherwood and Mr Mark Carson, former Vickers engineers, is trying to broaden into general engineering (for example for the nuclear industry) as well as working on oil-industry studies for customers such as John Brown and BP.

Other companies in the Barrow area set up as a result of splinterings from Vickers include Dudson Electronics (which specialises in underwater lighting), SEL (general research), TRONIC (connectors for subsea pipelines) and BUE Hydraulock (pipe technology).

Optics will hit market for phone exchanges

By David Thomas

THE increased use of fibre optics in telecommunications is likely to lead to a decline in the market for public telephone exchanges, according to a new report by International Resources Development, a US market research company.

The design of telecommunications networks depends on the relation between the cost of switching and transmission facilities, the report says.

It argues that this relationship has been radically altered by fibre optics, which will eventually lead to a steep reduction in the cost of transmission.

"With optical transmission systems that can operate at several gigabits (125m characters = 1 gigabit) per second just about to hit the market, nothing else will be able to touch fibre optics for cheap wideband transmission," says Lawrence Gasman, who coordinated the report.

He continues: "Some of the switch manufacturers are struggling now, but just wait and see what happens when the carriers fully understand what they can do with fibre optics."

The report predicts an era of more centralised switching, with a move away from the present complex hierarchy of local and regional switching centres.

Where optical fibre is laid it will make "backhauling" increasingly economic. Backhauling is the switching of circuits over apparently irrational routes: going from Washington to New York via Chicago, for example.

Fibre Optic Telecommunications Opportunities IRD, 6 Provvit Street, Newark, Connecticut, 06855 US, \$1,850.

WORTH WATCHING

Breath of life for desk-top publishing

PHOTOGRAPHS, PRINTED artwork, diagrams, or "live" objects pictured on a close-circuit television camera can be entered into an Amstrad personal computer (PC) or similar machine using a circuit board from UK company Digitrust.

Such systems will find increasing application in desk-top publishing and in pictorial databases. The "live" use is particularly valuable in that objects do not have to be photographed for use in publications.

The company will supply the board, called Micro Eye, and a suitable camera with stand for £395. The board alone costs £295. The system works by "grabbing" a single frame from the TV signal, digitising it and storing it on the PC's magnetic disk. The images captured can be merged with text using word processing software.

Belgians take a bar-code long shot

A LONG-RANGE bar code scanner from Brussels company Symbol Technologies can read low density bar codes at distances up to 1.5 metres (5 ft). About the size of a home power drill, the unit should

prove useful in warehouses and distribution outlets, where a fork-lift truck driver, without leaving his vehicle, will be able to read a packing case bar code by pointing the device and pressing a button. The device, designated LS 7000 ZLB, can link either directly with a computer or can be used with portable data collection unit which can feed the information into a computer at a convenient time.

Prime performance as Dutch show grit

AKZO COATINGS of Wapenveld in The Netherlands has patented a process that cleans steel by grit blasting and applies an epoxy-based primer in the same pass of a specially developed nozzle. The system, called Gritkote, uses a standard grit blasting unit with a curved nozzle that diverts part of the air serving the grit feed to atomise and apply the primer. The nozzle can thus prime and blast simultaneously along two parallel strips.

The company claims that the quality of the priming is maintained, even when application takes place in adverse weather conditions. There is no opportunity for the freshly cleaned steel to be affected by moisture or atmospheric dirt. Thus, work can continue in fog, high humidity and drizzle, without risk of rust formation. Work programmes can therefore more easily be kept on schedule.

Siemens switches into light opera

THE ROYAL Opera House in London has had a new electronic stage lighting control system installed by West German electronics company Siemens.

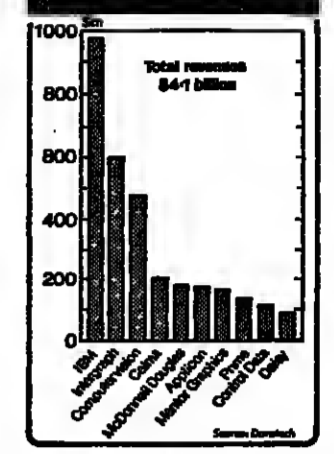
During rehearsals, the lighting cues, along with brilliance levels, timings and colour changes, for each scene are decided upon and put into the system's memory. On the night of the performance, the lighting operator

recalls each scene by use of a keyboard, and the proper settings and timing are made automatically. The system allows for easy correction should there be any mishaps or unscheduled scene changes on stage.

CAD/CAM growth continues to slow

THE CAD/CAM (computer-aided design and manufacturing) industry world-wide is continuing to experience slower revenue growth, according to market research company Daratech of Cambridge, Massachusetts.

Revenues this year will be about \$4.1bn, but this is an



increase of only 14 per cent on 1985. The previous two years showed advances of 25 per cent (1985) and 56 per cent (1984).

Daratech's interrogation of industry executives of CAD/CAM using companies revealed that larger manufacturing concerns have virtually stopped purchasing big and expensive systems.

Instead engineers have been opting for personal computer-based systems from companies like Autodesk (San Jose, California), which is forecasting an 80 per cent



increase in revenues to \$45m for 1986.

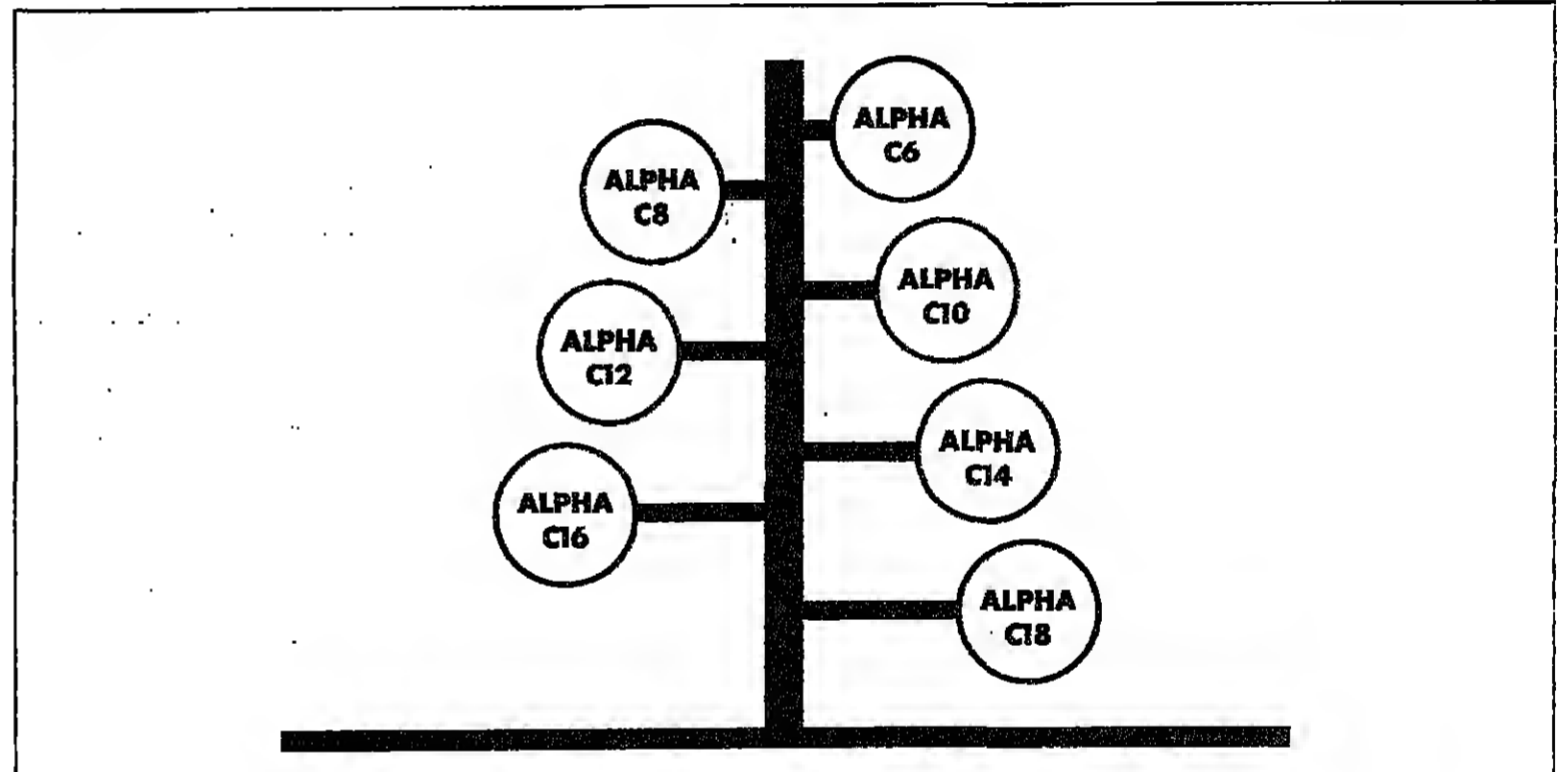
Another contributing factor to the slowing of overall industry revenue growth is that the computing power needed for high-level systems is costing less and less, largely due to computers like Digital Equipment's Microvax 2. For example, McDonnell Douglas (now number five in world CAD/CAM sales) increased unit sales of its popular Uni-graphics system by 25 per cent in the first quarter of 1986, but had only slight gains in revenues, compared with the corresponding period of 1985.

Bricklayers move to stop the rot

RECENTLY THIS column reported on a hand-held electronic unit that can locate corroded ties in cavity walls. Now, Ryton Building Products of Kettering, UK, points out that it produces a tie made from polypropylene. For new buildings, this prevents corrosion problems. A million have been sold.

The ties are approved by the British Board of Agreement (a building materials and components assessment/certification body). The ties' flexibility means they are suitable for a variety of brickwork patterns. However, they can easily resist the tensile and compressive forces exerted within the cavity wall.

CONTACTS: Digitrust: UK, 0762 4296, Ryton: UK, 0339 51187; Symbol: Belgium, 2 640 3222; Siemens: UK office, 0822 55351; Akzo Coatings: 026 71911; Daratech: US, (617) 284 2338.



Shell's higher olefins plant has borne a lot of fruit.

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UK NEWS

EEC attacks US telecommunication moves

BY TERRY DODSWORTH AND DAVID THOMAS

THE EUROPEAN COMMISSION was "deeply disturbed" by recent moves in the US to discriminate against European suppliers to the American market, Mr Michel Carpentier, the director general of Telecommunication Information Industry and Innovation at the EEC, said yesterday.

Speaking at the Financial Times conference on world telecommunications before an audience which included several US regulators and trade representatives, Mr Carpentier said that he was also worried by protectionist pressures in the US Congress which could lead to a "substantial" deterioration in international trade relations.

Mr Carpentier's remarks refer to moves by the Federal Communications Commission in the US to discriminate against sales of equipment made by Siemens of West Germany to American telephone companies. The EEC has taken this action because of West German pressure on France to allow Siemens to take over CGCT, the French telecommunications company which AT&T of the US also wants to acquire.

In addition, Mr Carpentier highlighted the difficulties facing European companies in breaking into

the American market, and the EEC's growing trade deficit in telecommunications. In 1985, the EEC deficit with the US grew by 25 per cent against the previous year, and with Japan by 61 per cent.

At the same time, EEC exports to the US were in relative decline, falling from 6.4 per cent of the American telecommunications market in 1979 to 3.8 per cent in 1984.

Mr Carpentier argued that in order to become more competitive the EEC needed to rationalise the present fragmented structure of its telecommunications industry. This could be achieved, he said, partly by developing a system of common standards throughout Europe and partly by using the deregulation process to stimulate new services.

Opening the conference, Sir Donald Maitland, argued that a comprehensive world telecommunications network would probably exist by the turn of the century.

However, further progress on telecommunications liberalisation was essential. In particular, US and Japanese markets must be open to European telecoms companies in return for Europe dismantling its internal barriers.

Mr Giles Shaw, UK Trade and Industry Minister, argued that tele-

communications liberalisation was a vital process: those countries which had carried it out had enjoyed growth in and diversification of their markets. However, telecommunications still remained one of the most protected industrial sectors internationally.

The days of purely national suppliers, geared solely to their domestic markets, were over. Already, there were remarkable international alliances between companies previously regarded as competitors.

Development of European telecommunications standards, for areas such as integrated services digital networks, was crucial to this process.

However, it was also important that European standards should be as simple as possible, because otherwise enterprise might be stifled.

European collaboration on research and development was also important.

Liberalisation had led to a series of milestones in the US industry, according to Mr Morris Tanenbaum, vice chairman of AT & T.

By the start of next year, long-distance rates in the US would have fallen by 23 per cent while the in-

crease in local rates had been modest. More than 175 companies were competing to be the primary long-distance providers for some 90m customers.

Mr Paul Hensse, the chairman of United Telecommunications, stressed that it would take considerable time to measure the effect of deregulation in the US but said it was already clear that the process of introducing competition between AT & T and other long-distance carriers was not working well.

The access to local exchange networks currently being afforded to competitors was not equal to that being given to AT & T, he said, while AT & T had the ability to squeeze its competitors both by lowering prices and by raising costs.

Mr Robert Eckhardt, executive vice president of Nynex, the US regional telephone operating company, said that the seven divested "Baby Bell" regional telephone groups had shown themselves to be far more exuberant than a lot of people expected.

Mr Masashi Kojima, senior vice president for Nippon Telegraph and Telephone, said liberalisation and privatisation were transforming the Japanese telecommunications scene.

Already four companies other than NTT had been given approval to provide phone and leased line services where the market is expected to grow by 5 to 6 per cent a year. Their prices for leased line services were roughly 25 per cent lower than NTT's, and they intended to offer telephone services from next autumn.

Moreover, about 200 companies had said they would like to offer value-added network services, where annual growth rates were expected to be about 8 to 9 per cent.

Professor Carl Christian von Weizsäcker of Cologne University and a member of the West German Monopoly Commission, argued that continental European countries ought to move towards a policy of demopolising their public telephone utilities.

Developments in Japan, the US and the UK, he said, along with the fact that telephone companies were increasingly becoming service enterprises rather than government-administered monopolies, suggested that the utilities ought to be allowed to enter other markets, but without the privileges of monopolists.

An additional reason for demopolising was the current distortion in tariffs, which tended to be out of

line with costs in continental Europe.

A truly European telecommunications market would help the European telecommunications industry compete with the US and Japan, according to Sir George Johnson, chairman of British Telecom.

There might, for example, be two or three competing but interconnecting European long-distance operators. European services over local networks could also be encouraged, as indeed was already happening through the satellite transmission of entertainment.

New services, in particular, should be created as competing European, not national, services.

This truly European market was needed because no European country represented a large enough market for its supply industry to be able to spread its R & D costs.

Mr Cor Wit, director general of Netherlands Postal and Telecommunications Services, argued that moves towards European standards would benefit everybody: hardware suppliers, suppliers of telephone services and users.

However, European developments must also allow for the fact that European countries had their distinctive cultures.

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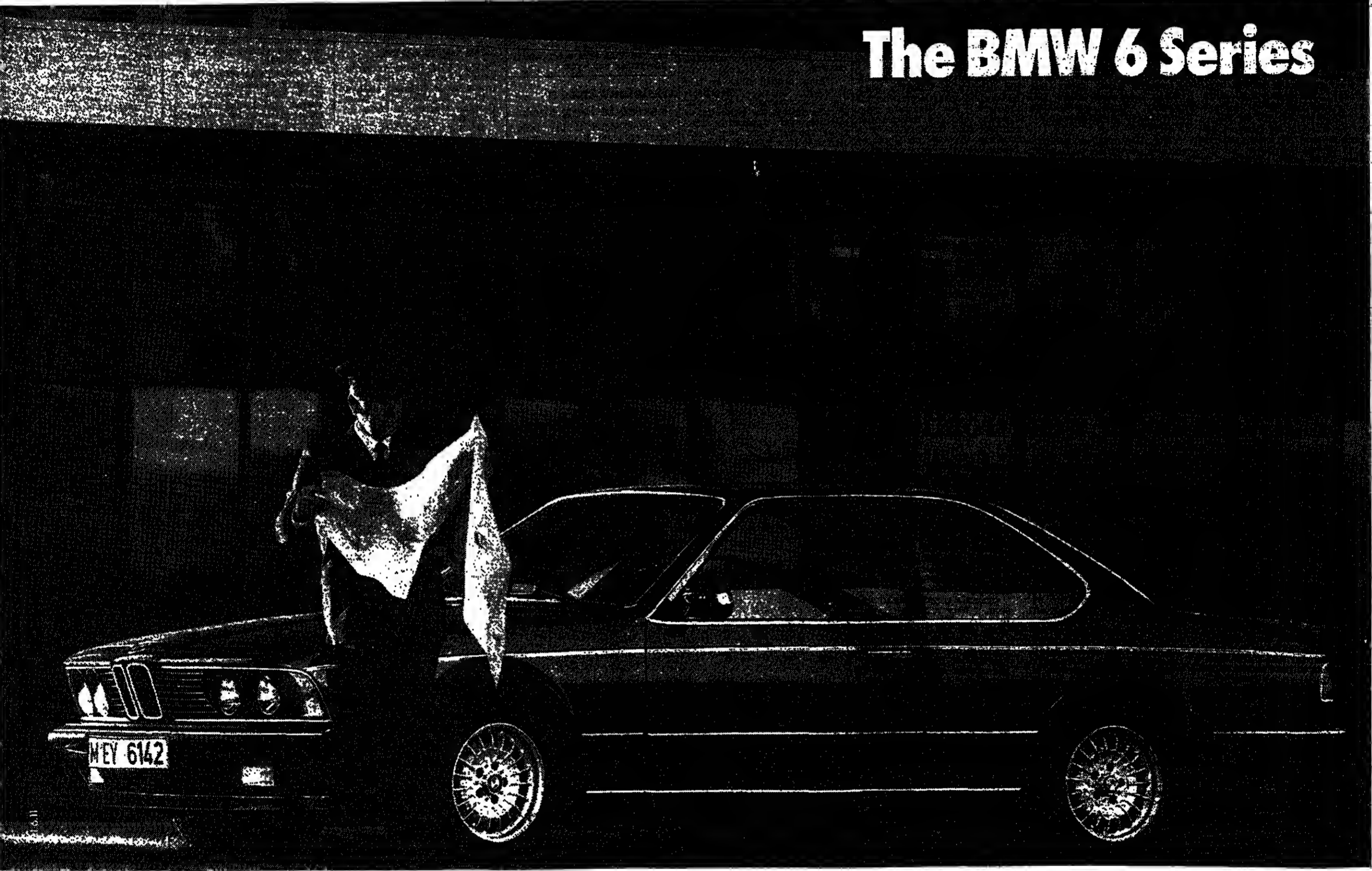


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coupé in the photograph belonged to you. Would you then see any earthly reason for allowing anyone else to sit behind its wheel? After all, what's the point of owning a gas pedal that has 286 hp under the bonnet and then giving someone else the pleasure of putting his foot down? And how much personal enjoyment do you think you would get from

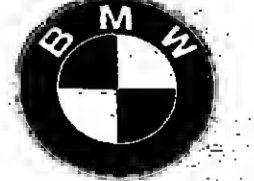
a suspension, whose fly-paper-like handling on winding country roads prompts some strange minds to think of a special tax on such pleasures, if you yourself weren't holding the leather-clad wheel?

Although even we must admit that we have heard tell of some people who've bought a BMW coupé purely for its classic look, and only then have been happily surprised to discover that unparalleled dynamism was also included in the price.

But we find it hard to believe you're one of those motorists who regard ABS anti-lock braking as a piece of electronic chicanery. Surely you're a committed driver

who appreciates that it's an essential element of the matter-of-fact safety of a car in this class. And you also realise that, even though a 6 Series BMW can be a source of pleasure for its passengers as well, its true attractions are only ever really experienced by its driver.

That's something that the gentleman in the peaked cap was obviously aware of. When he climbed out of his limousine to lean just once on the car he'd like to drive, as opposed to the car he has to drive.



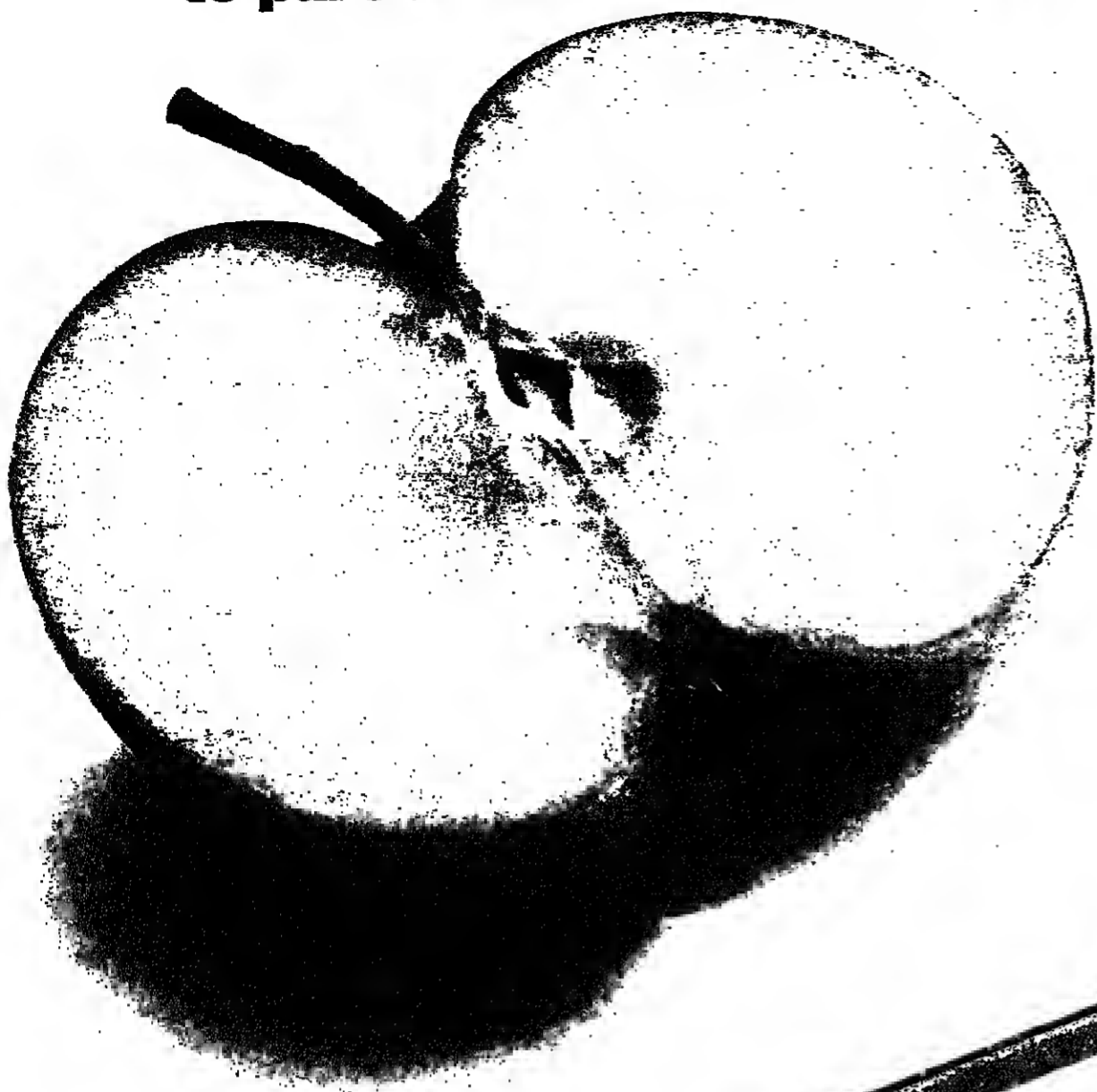
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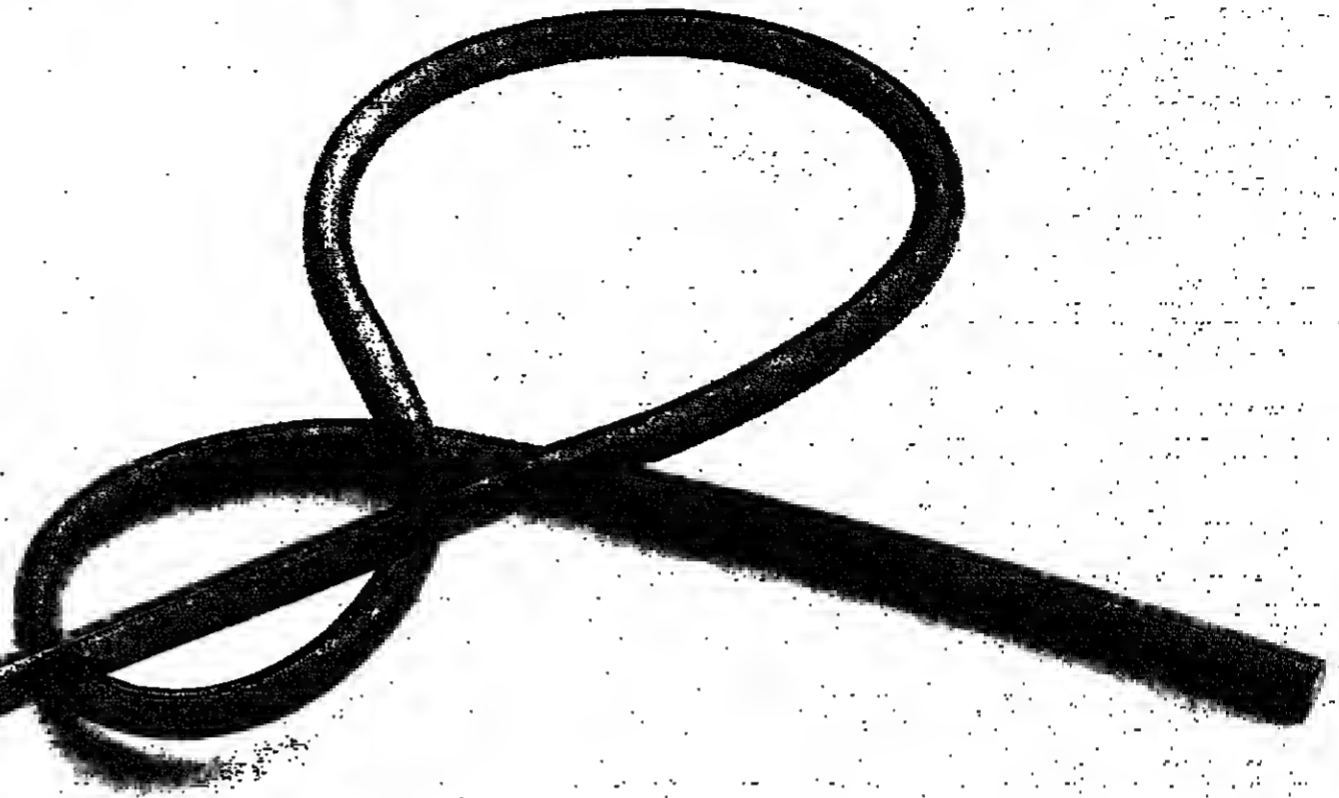
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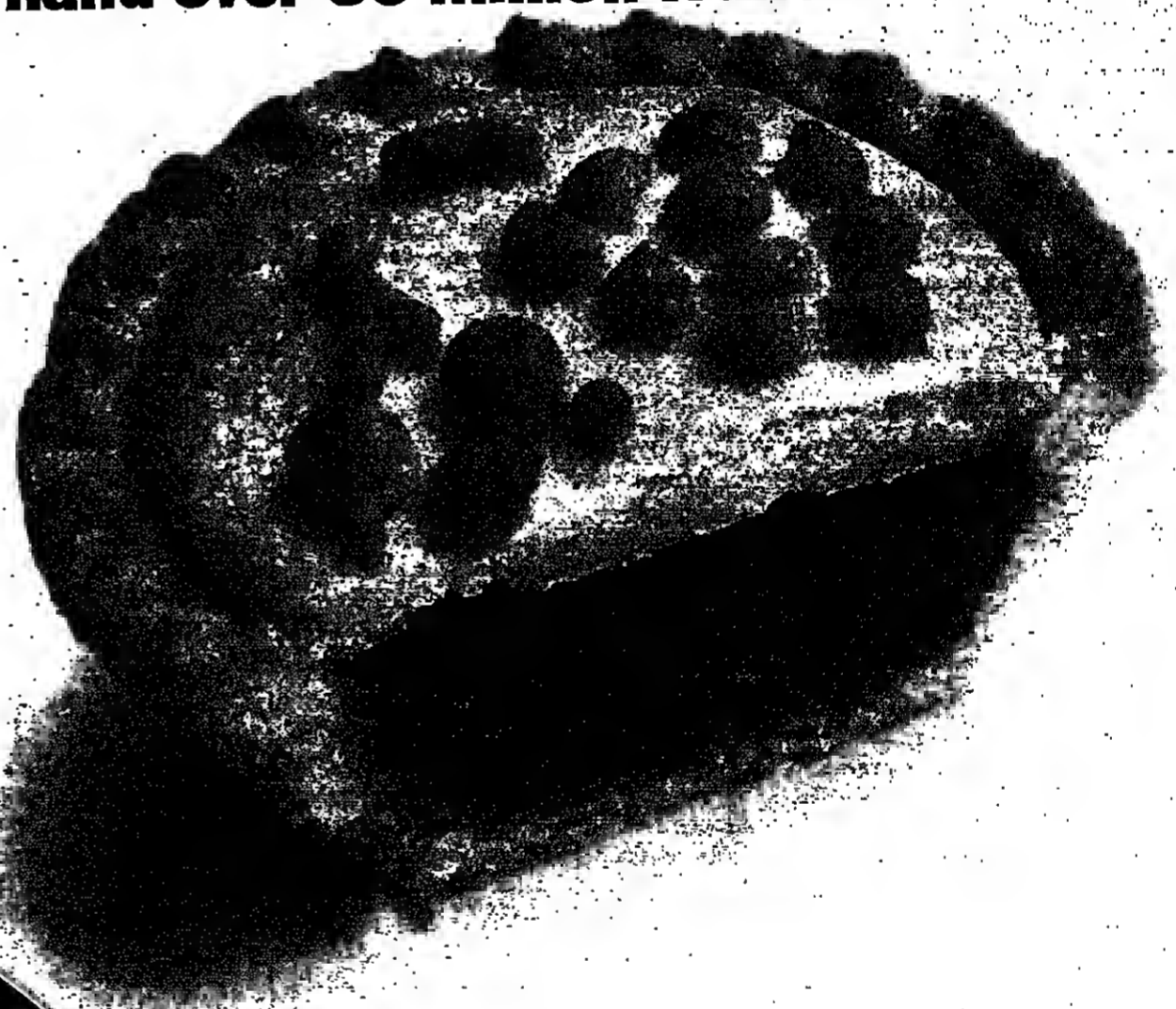
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UK NEWS

Paisley attacks tighter curb on Ulster marches

BY OUR BELFAST CORRESPONDENT

THE GOVERNMENT yesterday published proposals for new public order legislation in Northern Ireland, including stronger powers to clamp down on provocative parades and demonstrations.

Changes, foreshadowed in an announcement last March of a review of current legislation, met with opposition from Unionists who claim that the measures were directed against them and were part of an Anglo-Irish agreement designed to appease Nationalists.

The Rev Ian Paisley, leader of the hardline Democratic Unionist Party, claimed that the legislation would be "a recipe for civil war."

Mr Tom King, the Northern Ireland Secretary, told the press conference that some of the proposals would be misinterpreted by "irresponsible people" seeking to provoke tension between the communities.

While the issues involved had been raised at meetings of the Anglo-Irish conference, the details of the proposals were not discussed there, he said.

The measures were designed to bring Northern Ireland more closely into line with Great Britain where the Public Order Act 1986 was now law.

They will strengthen the powers of the authorities to deal with processions and open-air meetings which could lead to disorder.

Mr King said that, although most parades were peaceful, some were conducted in such a way as to intimidate others.

He hoped that the new law would be in operation in time for Ulster's traditional "marching season" next summer. There is to be a six-week consultation period to allow for objections.

The proposed order extends the period of notification of intended parades, widens the ground for banning them and gives the police extra powers to re-route them.

Mr King also announced proposals to strengthen the law on incitement to hatred and said the Government would repeal the 1974 Flags and Emblems Act. Nationalists have long believed that this act, passed by the old Stormont parliament, protected displays of the Union flag even when it was used to assert Loyalist domination.

Mr Seamus Mallon, deputy leader of the main Nationalist party, the Social Democratic and Labour Party, gave a general welcome to the proposals and said the measures to deal with parades were a significant improvement.

Mr Paisley said they would put "the Irish tricolour on an equal footing with the Union Jack" and claimed the clamp-down on parades was designed to stop Loyalists protesting against the Anglo-Irish agreement.

He said Protestants would pull down any Irish tricolours erected in public and, if the police intervened, they would be "setting themselves against the Protestant people."

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Dowty and CAP win submarine contract

By David Buchan

GRESHAM-CAP, a joint venture company of the Dowty and CAP groups, has won a £30m contract to develop and introduce in the early 1990s a new command system for Royal Navy submarines.

Company officials claimed yesterday that their new system, known as Successor, had already attracted export interest from foreign governments buying new submarines or retrofitting existing submarines.

Later models of the Type 2400 submarine, of which Vickers Shipbuilding and Engineering (VSEL) is launching the first, HMS Upholder, today and which VSEL is currently bidding to sell to Saudi Arabia, will be fitted with Successor.

In winning the fixed-price contract, Gresham-CAP beat competition from Ferranti, which has hitherto played the lead role in providing the Royal Navy with submarine command systems, as it still does in the case of surface-to-ship command systems.

Gresham-Lion Electronics was a significant collaborator with Ferranti in this area until its purchase a few years ago by Dowty.

WARNING ON THE IMPACT OF REDUCED FUNDING

British science 'faces brain drain'

BY DAVID FISHLICK, SCIENCE EDITOR

HARD EVIDENCE is available that British science is in decline, especially in important areas such as physics, Professor Sir George Porter, president of the Royal Society, said in his anniversary address to the society last night.

Sir George said there was also evidence that Britain's funding of science was less generous than that of its main trading rivals.

Although a causal relationship between the two facts could not be proved, "it would be hard to deny it," Sir George said. He believed reduced funding for research damaged British science in two ways.

One was that, in a world of increasingly sophisticated scientific instrumentation, it might prove too little to fund the tools and support staff.

The other was that the financial rewards and future prospects for individual scientists might become so poor that the best were exported, especially to the US.

Already there was evidence that many of Britain's best scientists went to live overseas, often while at the peak of their creativity, he said. A quarter of the new fellows elected to the Royal Society this year live abroad, half of them in the US.

Sir George said the Royal Society believed that 82 of its fellows were currently resident in the US. "Their quality may be judged by their good addresses: six professors in Princeton, six in Chicago, five in Cornell, five at MIT, five in La Jolla, four in Caltech, three at Harvard, for example. Anyone living in Silicon Valley will not be short of British neighbours," he forecast.

Corresponding figures for the US brain drain suggested that only one member of the US Academy of Sciences was living permanently in Britain.

For those who saw the Royal Society as what he called the "geriatric fringe" Sir George reminded fellows that most could relate how

some of their very best students held full professorships in the best US universities "at an early age, with research facilities that would be regarded as lavish here, and a salary that would be unthinkable."

Sir George understood that 40 per cent of the research fellows of Trinity College, Cambridge, of the last 10 years were now living abroad.

It was very difficult to compete for the top people if nearly the same salary were being paid to all professors, as is the case in Britain.

Sir George warned that it would be naive to suppose that Britain would return to what he called the halcyon days of the 1960s.

ECGD to retain exchange rate aid

BY PETER MONTAGNON, TRADE EDITOR

THE GOVERNMENT is to assume direct responsibility for the costs of an Export Credits Guarantee Department (ECGD) scheme to provide British exporters with an exchange-rate guarantee when they bid for international contracts priced in foreign currencies.

The announcement yesterday by Mr Jack Gill, ECGD chief executive, will come as a relief to British exporters involved in the sensitive area of competing for major contracts abroad. Many had been worried that the facility would be cur-

talled as part of efforts to improve ECGD's financial performance.

The Government's decision follows an investigation by the National Audit Office into loss-making facilities operated by the ECGD. The investigation covered three schemes which have notched up an accumulated cash-flow deficit of £382m.

ECGD is already phasing out one of the schemes in question, the comprehensive short-term bank guarantee facility which protects banks against non-repayment of

loans made to exporters, but Mr Gill said the tender-to-contract scheme would be retained.

"Ministers are persuaded that this is a sensible facility for our exporters to have, given the world they are competing in," he said. Other countries are able to provide their exporters with exchange-rate protection between the bidding stage and the actual award of a contract, but the service is difficult to price economically and the Government is to take over its costs.

A decision has yet to be taken on a third facility under review, the comprehensive external trade facility which provides insurance for goods shipped from one overseas country to another although Mr Gill hinted yesterday that it would probably be retained.

Findings of the National Audit Office inquiry were published yesterday as part of the Auditor General's review of the latest ECGD trading results. These include a forecast that its borrowing from the Government will rise to £1.1bn in the financial year to March 1987.

Irish judge rules today on book injunction

By Hugh Carnegie in Dublin

AN IRISH high court judge will decide today whether to extend a temporary injunction granted to the British Government last week against publication in Ireland of the book One Girl's War by the late Ms Joan Miller, a wartime British counter intelligence (MI6) agent.

Counsel representing Sir Michael Havers, the UK Attorney General, is presenting a case broadly similar to that of the British Government in Sydney, Australia, against Mr Peter Wright, a retired MI6 agent who is attempting to publish a book about his experiences in the UK secret service.

Mr Nial Fennelly, senior counsel, said that publication of One Girl's War would break the contractual duty of confidentiality of members of the British security services.

It raised the risk of other agents publishing similar memoirs and could cause irreparable damage.

For the publishers, Brandon Books, of Tralee, County Kerry, Mr Hugh O'Flaherty, senior counsel, argued that any malfunction in a foreign security service was not the concern of an Irish court. If there had been a breach of confidentiality in the British service, the court should simply say: "Too bad."

Treasury worries delay space shuttle decision

BY PETER MARSH

TREASURY worries about the impact of new space programmes on Britain's public expenditure are contributing to a delay by the UK in deciding whether to join a European Space Agency (ESA) scheme to design a mini space shuttle.

A decision on participating in the French-inspired Hermes project, intended to produce a small manned vehicle to ferry goods and materials to a proposed space station, had been due yesterday. But according to the British National Space Centre, the decision may not be announced for days or even weeks.

This is to give ministers more time to consider the Hermes scheme in the context of other new space programmes that could add greatly to Britain's spending on space science and technology.

Ministers are discussing all these details while preparing Britain's national space plan, a document setting out the UK's aims in space for the next decade. The plan - which could entail the UK's annual spending on civilian space science and technology rising by 70 per cent by 1990, to about £170m - is due to be published by Christmas.

APPOINTMENTS

Managing director of Citibank Savings

CITIBANK has appointed Mr Paul Cohen as managing director of Citibank Savings with responsibility for the mortgage banking division, finance house division, retail cards division and store-card. Since January 1988, Mr Cohen has been managing director of British National Life Assurance - a Citicorp subsidiary. He will continue to manage BNLA in addition to his new responsibilities. Mr Tony Fitz-Simons becomes managing director personal bank with responsibility for its existing retail branch activities in the UK and its future developments in retailing financial services. He joined Citibank from Grand Metropolitan where he was managing director of the Host group.

Reappointments to the NORTH WESTERN ELECTRICITY BOARD are Mr John Parsons (from January 18), managing director of Fairey Engineering, and of the special engineering division of Williams Holdings; Mr Jack Brown (from February 3), secretary of the textiles division of the General Municipal, Boilermakers and Allied Trades Union; and Mr Neville Beut (from April 18), director of Walker Greenbank. All are for three years as non-executive members.

Mr David Carthy has been appointed to the board of BLUEBIRD TOYS as commercial director.

Mr M. R. Mobbs becomes director of business development (defence and aviation) for the ML HOLDINGS GROUP from January 1. He relinquishes his chairmanship and managing directorship of ML Aviation Co, but remains a director of ML Aviation in addition to his recent appointment to the boards of Slingsby and Hydro-Bond. Mr Peter Pollock becomes chairman of ML Aviation, in line with his chairmanship of all the group's subsidiary companies. Mr James A. G. Luck is appointed managing director of ML Aviation. He joins from the GEC Group.

GOLDEN WONDER has appointed Mr Hugh Cripps as operations director, responsible for production in the company's five factories as well as purchasing and engineering. He was with Nabisco as operations director, hisentis.

Mr Graham Stubbs has been appointed as production director, GREENBROOK FURNITURE. He was previously with Kitchens Direct.

GRANVILLE TRUST, a new domestic retail banking services operation, part of Granville &

Co, has made the following appointments: Mr Michael Allsopp, chairman; Mr Ted Colman, managing director; and Mr John Martin, director and company secretary.

MICRO FOCUS board responsibilities are now Mr Paul O'Grady (chairman), US sales; Mr Colin West (managing director), chief executive officer; Mr Brian Reynolds, products; Mr Ian Caffe, non-executive; Mr Paul Adams, Japan operations; Mr Ron Forbes, group financial controller. Mr O'Grady will remain based in the US.

Mr Robert Ainsworth has been appointed finance director and Mr Charles Benham a non-executive director of THE PHOENIX TIMBER GROUP. Mr Ainsworth joins from Palma Group where he was group finance director. Mr Benham retired as deputy chairman of UCM Timber and chairman of the company's timber division earlier this year.

CITY OF WESTMINSTER ASSURANCE CO appointed Mr Tony Roberts as operations manager and appointed actuary.

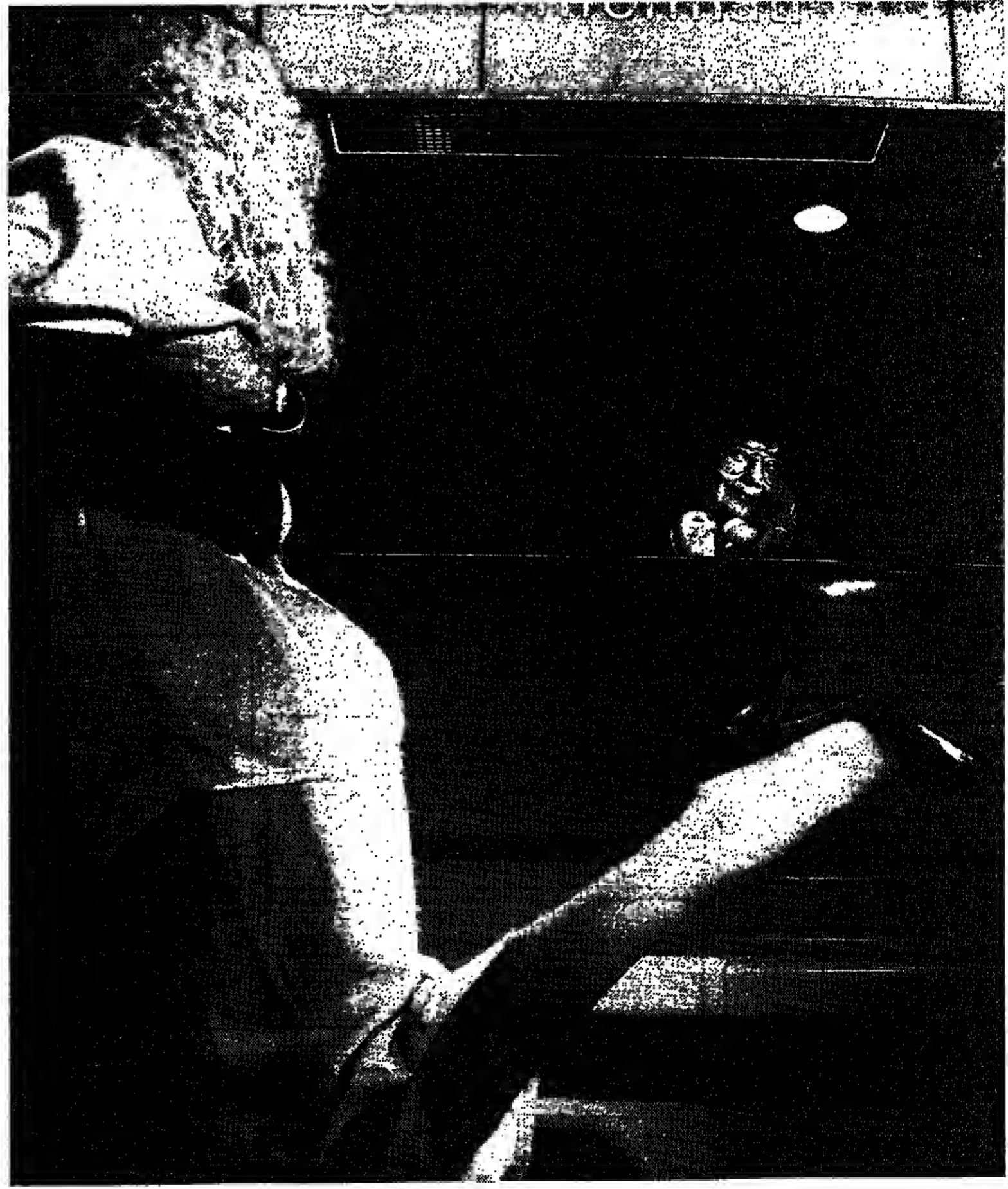
Mr Alan Robinson has been appointed deputy general manager of NATIONAL WESTMINSTER BANK's business development division. Since 1983 he has been chief manager of 15 Bishopsgate office in the City. He succeeds Mr John Burns, who becomes general manager, financial control division.

Mr John H. R. Minners and Mr John H. E. Horry will be joining the partnership of MACFARLANES on January 1.

Dr Nils Leffler has been appointed managing director of ASEA UK, succeeding Mr Eric Drewery, who becomes chairman from January 1. Dr Leffler was general manager of ASEA Industrial Electronics. Mr Drewery will simultaneously take up a newly-created post as chief executive officer of ASEA Holdings with overall responsibility for the activities of the Asea Group companies in Great Britain.

DALE ELECTRIC INTERNATIONAL has made the following appointments in subsidiary companies: Mr Howard Hunter becomes managing director of Erskine Systems, replacing Mr Roy Morris who died in August. Mr Hunter was works director. Mr John Armistead is made a director of Dale Electric of Great Britain. He is company secretary of the subsidiary, and will operate as financial director.

The more important the meeting, the more important the airline.



Lufthansa

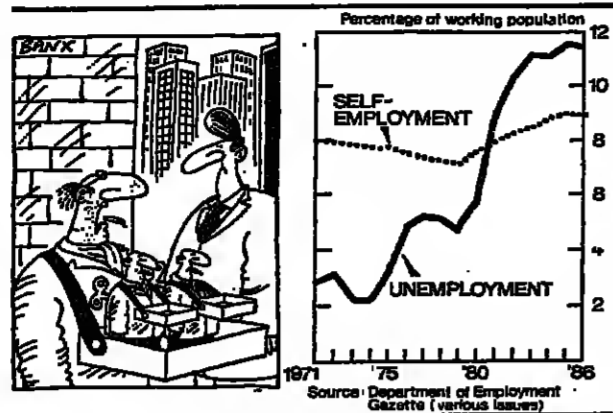
MANAGEMENT : Small Business

Self-employment and unemployment

An unequal balance

BY AMIN RAJAN

THE UK Government's decision to include the self-employed in the formula for calculating the national unemployment rate...



"Specialised knowledge has got me nowhere"

While the number of people in employment has declined by 1.8m in the 1980s, those in self-employment increased by 0.7m. The latter recorded the fastest increase in the post-Second World War period...

employed, even if they fall outside the official definition. Data deficiencies notwithstanding, it is clear that the underlying trend in self-employment has climbed firmly upward since 1978...

Nor is self-employment entirely about genuine job creation. This much emerges from the OSG study which identified a large number of industries, such as metal goods, engineering and construction, where growth in self-employment has been occurring in response to changing production methods...

junior assistants (in both cases partly former employees). This was merely redistributive and not creation of self-employment. The substantive point is that growth in self-employment is free of neither displacement nor spuriousness...

If international experience is anything to go by, there is ample potential for further growth: next to Sweden, the UK has had the lowest proportion of self-employed in the total workforce in recent years.

Policy devices such as the Enterprise Allowance and Loan Guarantee Scheme doubtless have a role to play in creating self-employment. But effective counselling and training is also greatly needed.

First and foremost, survival prospects are a matter of personal skill and competence in five general functions: planning, marketing, accounting, selling and inter-personal communication. Specialised knowledge in itself is not enough.

Accordingly, the public provision of training for the self-employed requires a fresh impetus in scope and content. Specifically, it needs to be targeted at women and ethnic minorities who evidently account for the largest component of growth...

EEC call for policy on technology

SMALL AND medium sized enterprises (SMEs) within the EEC should be given special treatment to encourage them to innovate and make the most of new technologies...

Additionally, says the report, the Commission should review the opportunities to provide a credit guarantee association at Community level to encourage research and development by SMEs...

The report reckons that one of the fundamental causes for the current low level of technological awareness and exploitation stems from a fundamental weakness as the standard of primary and secondary education charged with ensuring that there are modern standards and codes of practice in all relevant industries.

In brief...

As well as articles on a variety of subjects in industry, fashion, sport and music, this magazine provides a directory of small business contacts for those seeking advice, training or finance.

CAUSEWAY Venture Capital has raised a further £20m from institutions for venture and development capital investment. This brings the total under management by Causeway, an independent investment company formed three years ago, to £33m.

Students at Aberdeen University have launched a magazine designed to encourage students to set up in business on their own. Called Initiative, the magazine is sponsored by BP, Britain's major oil group which itself has a record of encouraging enterprise.

Growth for CoSIRA

THE Council for Small Industries in Rural Areas continued to expand its efforts in 1985-86 to promote the growth of small companies in the UK...

A record number of completions and lettings was achieved under the commission's wholly-financed factory and workshop programme. Nearly £15m was invested in the workshop programme. Some 337 advance workshops and custom-built units were completed...

For a questionnaire form part of the firm's new Guide to Business Growth...

The commission's redundant building conversion grants, which are administered by CoSIRA, are seen as a highly cost-effective way of renovating or modernising redundant rural buildings in the Rural Development Areas for job creation.

One small but practical development in the year was the launch, with the approval of the Association of County Councils, the Association of District Councils, the Crafts Council, the Design Council and the Department of Transport, of two styles of roadsign specifically developed to make it easier for rural businesses to advertise their presence.

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FT COMMERCIAL LAW REPORTS

WHEN YOUR CURRENT CLEANING CONTRACT EXPIRES, WHO'S GOING TO FILL THE VACUUM?



Cleaning contracts are not noted for being long lasting relationships. Of course they begin with solemn vows of devotion, but soon the good intentions begin to gather dust.

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ICI LTD FIBRES LTD v MAT TRANSPORT LTD. Queen's Bench Division (Commercial Court). Mr Justice Staughton: October 27 1988

WHERE GOODS ARE despatched under a contract of carriage by road and are involved in a road accident, they are deemed to be "lost" for limitation period purposes if they do not reach their destination, though they remain some salvage value and are therefore in fact damaged, not lost; and the time for bringing proceedings against the carrier can be suspended before it begins to run and before the claim is quantified, by written notice of intention to hold him responsible.

Mr Justice Staughton so held when giving judgment for the plaintiffs, ICI Fibres Ltd and ICI France SA, on their claim against Mat Transport Ltd. ICI's goods were by road, for loss incurred in respect of the goods as a result of a road accident.

Article 32 of the Convention on the Carriage of Goods by Road provides: (1) The period of limitation for an action arising out of carriage under this convention shall be one year. The period... shall begin to run: (a) in the case of... damage... from the date of delivery; (b) in the case of total loss... where there is no agreed time limit from the 60th day from the date on which the goods were taken over by the carrier...

Article 20: The fact that goods have not been delivered within 30 days following expiry of the agreed time limit or, if there is no agreed time limit, within 60 days from... when the carrier took over the goods, shall be conclusive evidence of the loss of the goods, and the person entitled to make a claim may thereupon treat them as lost.

Article 23: "(4)... carriage charges... and other charges incurred in respect of the carriage of the goods shall be refunded in full in case of total loss..."

Article 25: "(1) In case of damage the carrier shall be liable for the amount by which the goods have diminished in value..."

HIS LORDSHIP said that in September 1982 ICI despatched a quantity of yarn for carriage by road to the south of France. Mat Transport was the carrier. The goods were taken over by Mat on being loaded at Harrogate on September 23. The lorry did not get much beyond Calais. It was then involved in a road accident and the goods were seriously damaged.

Time for bringing road carriage claim

KB 458, 468. The authors of the international convention should not be assumed to have had it in mind.

In William Tatton [1974] 1 Lloyd's Rep 203 Mr Justice Browne, referring to goods which were damaged so that they only had scrap value, said: "This was a case of damage, not of loss."

In Worldwide Carriers [1983] 1 Lloyd's Rep 61, where boxes of steelcord were exposed to the weather as a result of an accident and became useless, having no value other than scrap, Mr Justice Parker agreed. He said: "Had the goods in fact been reloaded and delivered instead of being returned, it would be doing violence to the language to say the case was one of loss and not damage."

Following those views, this was a case of damage rather than loss so far as the goods were concerned. But the goods were not delivered in terms of article 20, within 60 days from when Mat took them over. That was said to be conclusive evidence of the loss of the goods, with the result that "the person entitled to make a claim may thereupon treat them as lost."

Mr Meeson, for ICI, submitted that it was not bound to take that course. It might, if it chose, treat the goods as damaged; and it did so choose. Mr Hooper, for Mat, said that the lapse of 60 days was conclusive evidence for both parties and that ICI was obliged to treat the goods as lost.

So far as limitation and the running of time were concerned, the parties were entitled to know where they stood. For that purpose, at any rate, no delivery within 60 days was conclusive evidence binding on both parties that there had been a loss of the goods; and the time limit provided by article 32 (1)(b) was applicable.

ICI's claim was prima facie time-barred under article 32 (1)(b).

The second issue was whether ICI's letter of October 11, 1982 was a written claim within article 32(2).

Mr Hooper argued that a claim must be quantified and must be a present demand rather than an indication of a possible claim in the future.

In William Tatton Mr Justice Browne said: "The natural meaning of the word 'claim' would certainly include a general intimation of intention to hold the carrier liable."

The letter of October 11 was a sufficient written claim. The third issue was whether the limitation period was suspended though it had not begun.

Article 32 defined the period of limitation as one year. It was preceded, where paragraph 1(b) or 1(c) applied, by an antecedent period of 60 days in one case and three months in the other.

Mr Hooper submitted that a written claim made during the antecedent period could not suspend the limitation period, as the limitation period was not then running. It could not suspend the antecedent period, he said, because the article did not say that it could.

There was no reason why the Convention should have that result, nor why the owner of goods should lose his rights if he made a claim too early.

A written claim, unaccepted, suspended the limitation period as soon as it began to run, if it had not already begun.

It followed from what had already been decided that Mat was liable for the difference between the sound value of the goods and the amount achieved on resale. But there was also a fee of \$155 for arranging a joint survey.

The question was whether that was covered by article 23, if the claim must be for loss, or by article 25 including the provisions incorporated from article 23, if the claim were for damage.

In William Tatton Mr Justice Browne said: "Article 25 provides that the measure of damage for damage to goods shall be the amount by which the goods have diminished in value... I do not feel able to say that this figure the expenses claimed..."

However that passage had to be read in the light of the decision of the House of Lords in James Buchanan [1978] AC 41.

The court was entitled to hold that the survey fee was recoverable as "other charges in respect of the carriage of the goods."

Also, on the facts of the case, the survey fee was part of the cost of realising the damaged value of the goods, and so should be deducted from the sum actually realised before credit was given for the net amount. That had been decided by the Amsterdam District Court.

There would be judgment for ICI for \$17,974. For ICI: Nigel K. Meeson (Nigel Dickinson and Co). For Mat: James A. Hooper (Barlow Lyde and Gilbert). By Rachel Davies, Barrister.

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INTL. COMPANIES and FINANCE

El Rayan looks for new pastures

WHEN THE head of an investment company claims he is holding several tonnes of gold, some of it on the premises, it seems reasonable to ask what security arrangements have been made.

"Don't worry about security," said Mr Fathi Tewfik Abdel Fatah, the bearded principal of El Rayan Investments, who then produced from inside his traditional Arab Browning automatic made in Belgium.

Mr Tewfik removed the magazine before handing over the Browning. It was, by any standards, an unorthodox gesture for the chairman of a company which has invested more than \$1bn of depositors' funds and has been paying an annual "dividend" of 24 per cent or more on those deposits.

The question for many Egyptians, not least for those in authority, is whether Mr Tewfik can sustain what on the surface appears to have been a phenomenal rate of success in his company's principal activities, which include currency speculation and trading.

Comments recently by Mr Ali Negm, the former head of Egypt's central bank, that no company involved in legal activities could afford to pay annual dividends of 24 per cent or more on US dollar deposits was in part responsible for a run on El Rayan last month that rocked the Egyptian financial sector.

The authorities are concerned about the security of deposits and about the possible impact of a collapse of a large investment house on the banking sector itself.

Perhaps as many as 20 deposit takers like El Rayan— but operating on a much smaller scale—have blossomed in Egypt in the past several years, drawing funds away from banks by offering high returns.

One of the Government's problems has been that its regulatory mechanisms to control this sector are undeveloped. Attempts have been made to

strengthen controls, but the fast-growing Islamic investment sector engaged in a multitude of activities is proving difficult to regulate with the limited resources available to the central bank and central monetary authority.

Mr Tewfik revealed, during an interview in his cramped office dominated by a bank of telephones and several Reuter screens, that depositors had withdrawn more than \$400m in several hectic days during November when traffic was jammed up for miles outside his headquarters in the busy Pyramid Road.

The weekly magazine October described the scenes outside El

worth of D-marks, largely negating an attempt by the Bank of Japan to depress the value of the dollar against the yen (a dollar was then worth about ¥216) by selling \$200m to \$300m in US currency.

El Rayan also exerts a strong influence on Egypt's own somewhat chaotic foreign exchange market. It was rumoured earlier this month, when the Egyptian pound suddenly depreciated against the dollar, that El Rayan dumped dollars into the market to help stabilise the local currency.

Mr Tewfik would not comment directly on these reports, except to say: "We are very keen to have the dollar value against the pound the lowest

"profit and loss" contracts with depositors, which means theoretically that they undertake to share in the successes and failures of the company. Mr Tewfik appeared sensitive to suggestions that his company was a phenomenon of the fundamentalist tendency sweeping the Arab world. He pointed out that depositors included three Israelis.

A local banker was in no doubt that the religious trend is in part responsible for El Rayan's rapid growth. The Islamic movement is not only political, but is becoming more of an economic power," he said.

Mr Tewfik says his company has 300,000 depositors, many of them small investors including Egyptians working in the Gulf. El Rayan was formally established in 1982 with capital of \$2m subscribed by a handful of shareholders, including Mr Tewfik's two brothers.

El Rayan's activities accelerated towards the end of 1984 as depositors poured funds into the company, attracted by high yields on local currency and US dollar deposits.

Mr Tewfik said El Rayan was moving into manufacturing, heavy industry and agriculture. Some 20 companies had been established under the El Rayan umbrella.

The dismissed scepticism about his ability to handle huge sums of money on a daily basis. "We are working according to a very specific plan set by experts and technicians of international renown," he said.

El Rayan has a dealing room in its Pyramid Road premises. It has representatives in the US and Switzerland. Funds lodged in international markets now total about \$150m, well down on the figure before the run in the company.

Mr Tewfik's strategy appears to be to move gradually from speculative activities to investments in industry and agriculture. In Egypt's difficult business environment these appear less likely to produce dividends of 20 to 30 per cent on money invested.

Tony Walker reports on a twist in the fortunes of an Egyptian deposit taker

Rayan's modest office block as the "hurricane in Pyramid Road." Apart from the comments of Mr Negm, an article in the London-based Middle East Money magazine claiming that El Rayan had lost \$100m in billion trading helped provoke the run on the investment company.

Mr Tewfik, a 41-year-old former technician who spent 14 years in Saudi Arabia before returning to Egypt in 1980, denied emphatically that El Rayan had lost money in gold dealing. He also rejected allegations that his company was engaged in illegal business, such as black market trading.

Mr Tewfik attributed his company's rapid expansion from an egg delivery service in 1980 to a multi-billion dollar operation in 1986 to "hard work." He has another Reuter screen in his bedroom so he can catch the Far East markets, and says he sleeps two hours a night.

The volume of El Rayan's dealings has been such at odd moments that it has influenced international currency markets. Earlier this year it sold \$500m

possible. If we can help the Government we will. I can't tell you how."

Foreign and local bankers are intensely sceptical about El Rayan. A representative of a large American bank said that "it's worst it is a pyramid scheme and at best it is a currency speculation."

Mr Tewfik, who wears a silver ring inscribed with nine solitary diamonds on one finger, makes no attempt to hide the fact that currency speculation makes up the bulk of El Rayan's activities.

The run on his company, he said, had forced him to remove funds from international markets and to sell about half his gold holdings, which totalled about three tonnes before the recent crisis. His gold sales had depressed the market in Egypt from E£23 (\$17) a gram to E£21. He had bought at E£14 to E£15 a gram, he said.

The rapid growth in deposits in El Rayan coincides with the strengthening Islamic trend in Egypt. The company is run according to Islamic principles in that it does not pay interest as such on deposits. Instead, El Rayan makes

Japan's offshore market opens

BY IAN RODGER IN TOKYO

JAPAN'S offshore financial market made a better than expected start yesterday, attracting an estimated \$55bn in deposits, roughly double the widely predicted amount.

The Ministry of Finance (MoF) said it had licensed 181 financial institutions to operate in the market. All the big Japanese "city" or commercial banks plus more than 50 regional institutions and most foreign banks have been given permission to open accounts for offshore deposits by and loans to non-residents.

The MoF hopes the market will grow to \$65bn by the end of January, and gradually become a substantial force in promoting the international use of the yen. London has the world's largest offshore market,

with outstandings of \$750bn. New York's international banking facility (IBF) has about \$260bn.

Pessimism about the market's prospects had been widespread because the Japanese authorities have placed a number of restrictions on the operation of the market. For example, depositors must pay full Japanese national and local taxes on income. Also, no securities or precious metal transactions are allowed because of the authorities' worries about leakage into the domestic economy.

There was some doubt about how many banks would apply for licences to deal offshore, but the MoF said yesterday only 10 foreign banks did not apply. Among them were Deutsche Bank, Hongkong and Shanghai

Banking Corporation, Credit Suisse, and Irving Trust and Security Pacific of the US.

Mr John Mason, chief executive in Japan of Hongkong Bank, said it did not make sense to open an offshore account in Tokyo. "We already have several offshore banking units around the world, including many in this time zone," he said.

Most of the transfers to offshore accounts yesterday were in dollars and yen. Among the major entrants were Sumitomo Bank with transfers totalling \$5.8bn in both yen and dollars, Sanwa Bank with \$4.7bn and ¥123.7bn (\$73.5m), Daiichi Kangyo Bank with \$3.6bn and ¥84bn and Tokai Bank with \$3.35bn and ¥105bn.

Metropolitan Life ahead

By Jim Jones in Johannesburg

METROPOLITAN LIFE, the South African life insurer which acquired a Johannesburg Stock Exchange quotation earlier this year, beat its pre-listing profit forecast by a small margin in the year to September.

Disclosed net profits attributable to shareholders were R8.3m (\$4m) against a forecast of at least R8.5m and last year's outcome of R4.5m. Premium income rose to R213.2m from R192.4m and investment income increased to R118.9m from R98.2m.

Earnings per share were 21 cents against a prospectus forecast of 19.65 cents. A total dividend of 15 cents was declared against a forecast 14 cents.

Bank of Baroda advertisement including logo and details of U.S. \$30,000,000 Floating Rate Notes due 1989.

THE ZURICH STOCK EXCHANGE advertisement with logo and text: Fully continuous trading in leading Swiss shares.

MAS reluctant to take lead on Brunei bank

BY JOYCE QUEK IN SINGAPORE

THE MONETARY Authority of Singapore, the island's powerful quasi-central bank, appeared reluctant yesterday to take a leading role in resolving problems arising from the exposure of Singapore-operating commercial banks to National Bank of Brunei (NBB).

This followed a weekend visit to Brunei by a top-level MAS team headed by Mr Joe Filay, its managing director. They were seeking clarification on the financial standing of NBB, which was closed on November 29 after a police raid on its offices. Five execu-

India relaxes hotel limits

INDIA HAS raised the maximum foreign equity permitted in hotel investment from 30 per cent to 40 per cent, effective immediately, Reuter reports from Delhi.

The ceiling, imposed about six years ago, was relaxed in order to encourage hotel construction, according to a government statement. More rooms are needed to meet an expected increase in numbers of tourists, Tourism Ministry officials said. More than 1m tourists are expected to visit India in 1986.

India relaxes hotel limits

INDIA HAS raised the maximum foreign equity permitted in hotel investment from 30 per cent to 40 per cent, effective immediately, Reuter reports from Delhi.

Standard Bank Import and Export Finance Company Limited advertisement with logo and details of \$50,000,000 Floating Rate Notes due 1989.

Standard Oil Finance advertisement featuring \$5,500,000,000 Credit Facilities and a list of partner banks.

Toyota Motor Credit Corporation advertisement for U.S. \$150,000,000 7 per cent Notes due 1989, listing various financial institutions.

Vertical text on the left margin including 'ANCE', 'ment Bank', 'capital', 'ig', 'ch', 'st', 'gh', 'AL BANKING', 'ik'.

UK COMPANY NEWS

Polly Peck on target with £70.4m

BY CLAY HARRIS

Polly Peck International yesterday reported a 15 per cent increase in full-year pre-tax profits to £70.4m and finally unveiled long-remembered plans to move into tourism with construction of a five-star hotel at Antalya, southern Turkey.

The international trading group's results for the year to August were roughly in line with analysts' forecasts, unlike last year's debacle when the company fell short of predictions that had been scaled down only weeks previously.

Profits from textile operations fell from £4.2m to £1.8m largely through problems at Wearwell and Inter-City's UK operation. Wearwell suffered as Polly Peck moved to shift its emphasis away from Middle East markets, where trading relied on long-term credit, to the US and Europe.



Mr Asif Nadir, chairman of Polly Peck

A final dividend of 5.25p (3.75p) is proposed for a total of 6.75p (5.25p). The company also plans a one-for-five scrip issue, to indicate "its confidence in the future."

Buy-out of Longton Ind subsidiary

Five former managers at Longton Industrial Holdings, road haulier taken over by Thomson T-Line in July, are buying out the steel stockholding subsidiary, James and Tatten.

British Gas advisers nervous

THE ADVISERS to the £5.6bn offer for sale of shares in British Gas were last night showing signs of nervousness that many would-be investors could fail to meet tomorrow's 10 am deadline.

There was no further advance on Sunday's tally of more than 2m applications because the weekend post had not yet been delivered. The bulk of applications is expected to arrive today and tomorrow.

Small investors are thought to be largely unaware that they can leave their British Gas applications at branches of National Westminster Bank, the receiving bank to the issue.

Tribble Harris valued at £14m.

BY ALICE RAWSTHORN

Tribble Harris yesterday became the first US architect to go public in London by joining the Unlisted Securities Market through a placing of shares.

After the placing—through stockbrokers Savory Mill—its company will be valued at £14m. It is one of the larger architectural practices in the US with a business which has expanded to include planning, engineering and interior design.

In the longer term the company proposes to embark upon acquisitions, specifically by acquiring a similar business in the UK.

In the financial year to November 30 1985 Tribble Harris IA produced pre-tax profits of £733,000 on turnover of £12.1m. The prospectus forecasts profits of £1.8m for the 1985-86 financial year.

Stake in stockbroker for Burns Anderson

Burns Anderson, the Manchester-based financial services and motor distribution group, is to take a 51 per cent stake in W H Stephens, a Manchester-based stockbroker, for £285,000.

Burns will pay £200,000 in the form of redeemable loan stock and £85,000 in cash. It has the right to increase its holding to 49 per cent over the next five years.

Under the deal, which will take effect on April 1, 1987, Cookson will acquire a 45 per cent stake in the new, yet-to-be-named company, which will be an Anglo-American subsidiary, holding the remaining 55 per cent. The two parent companies are contributing businesses roughly in proportion to their stakes, although there may be some small consideration when the details are finally worked out.

Abaco expands loss adjustment business. Abaco Investments, the financial services group, is expanding its stake in the insurance loss adjustment business by the purchase of two Hong Kong companies for a total of £400,000.

EMI-Polygram £6m sale to Woolworth

Woolworth Holdings, the retail group, has bought Record Merchandisers, the record distribution company, from EMI-Polygram for £6.25m in cash.

L and M sale

London and Manchester Group, insurance company, has sold a near 10 per cent stake in London Trust. Just more than 9m shares were sold by Standard News, a stock under London and Manchester's control, as beneficially owned by the 1928 Investment Trust.

Milford Docks

Milford Docks said that Seacon and associates had raised their combined holding in the Welsh harbour company to 18.94 per cent.

I.G. INDEX

I.G. INDEX for December 1, 1986 (1984=100) Tel: 01-528 5699

The values of the offer are based on the price of 184p per Turner & Newall ordinary share at 3.30 p.m. on 1st December, 1986.

Heron holds 6.1% stake in Chloride

HERON INTERNATIONAL, the property and financial services group headed by Mr Gerald Ross, yesterday disclosed that it now holds a 6.1 per cent stake in the troubled batteries maker, Chloride Group.

AE beats profit forecast as Hollis ups stake to 26%

BY DAVID GOODHART

AE, the engineering group which is the subject of the bid battle between Mr Robert Maxwell's Hollis Group and Turner & Newall, yesterday improved on its forecast of £25m and reported pre-tax profit of £29m in the year to September 30, 1986.

Also yesterday, Hollis announced it had backed up its agreed deal by increasing its stake to just over 26 per cent. T&N either owns or has received acceptances for over 40 per cent of the company.

which narrowly failed in September. Mr Colin Hope, managing director of T&N, complained yesterday that "those bid costs require some explanation."

Berisford's sugar deal gain

BY ANDREW GOWERS

S & W Berisford, the commodity trading group, is holding out the prospect of a substantial reduction in net indebtedness and a sharp increase in shareholders' funds as a result of the proposed deal over its British Sugar subsidiary.

Mr Ebrahim Margulies, Berisford chairman, used these arguments yesterday in a letter strongly urging shareholders to back the deal, signed conditionally 10 days ago.

Mr Margulies said that under the deal, Berisford would receive £147m cash in repayment of 70 per cent of an outstanding £200m loan made to British Sugar by Berisford, and £275m in floating rate debentures for the sale of 70 per cent of British Sugar's capital.

Mr Margulies said he was "extremely pleased" with British Sugar's progress under its new managing director, Mr Peter Jacobs, and that it has now put behind it the difficult conditions of the past two years.

Cookson's moves in S Africa

Cookson Group, the acquisition industrial chemicals company, announced yesterday that it plans to inject the bulk of its South African interests into a new company to be owned jointly with Anglo American Corporation of South Africa, the large mining giant.

According to Cookson, the proposed merger will not have a significant effect on the group's net asset base for overall profits.

Once the Cookson and Anglo American interests have been injected, the new company will have sales of some R176m (£55m) and employ 2,000 people.

BARHAM GROUP is buying Teecher, Marks and Company, London-based commercial estate agency for a maximum £3.6m. The initial consideration of £2.7m will be satisfied by £1.93m cash and balance in shares with possible extra profit-related payments.

Table with columns: Dividend, Current payment, Date, Correc, Total, Total last year. Lists dividends for AE, Arlen, Thomas Borthwick, etc.

Dividends shown pence per share net except where otherwise stated. * Equivalent after allowing for scrip issue. † On capital increased by rights and/or acquisition issues. ‡ USM stock. † Final of 3p forecast.

KENYON Securities, funeral and ancillary services group, is buying L J Richmond & Sons for £370,000 to be satisfied by the payment of £150,000 cash and 68,750 Kenyon shares.

permission being granted for the new shares to be used on the USM. Net tangible assets of Richmond were £85,000.

Turner & Newall PLC FINAL OFFER FOR AE PLC. VALUE OF T&N FINAL OFFER: 282.4p. VALUE OF ADDITIONAL SHARE ELECTION UNDER T&N FINAL OFFER: 287p. THE RENEWED OFFER IS FINAL AND WILL CLOSE AT 1.00 p.m. ON 8th DECEMBER, 1986 UNLESS IT IS THEN UNCONDITIONAL AS TO ACCEPTANCES.

Vertical sidebar containing various advertisements including Borthwick, Creighton, Geers Gross, and others.

UK COMPANY NEWS

Increased work volume boosts VSEL to £7.02m

VSEL Consortium, the largest warship builder in the UK and Britain's only submarine builder, yesterday revealed that its profits for the half year to September had totalled £7.02m pre-tax.

The results were the company's first since it came to market in July. It was formed to mount an employee-led buy-out of the Vickers shipbuilding yard at Barrow-on-Furness and the Cammell Laird yard at Birkenhead. The yards were due to be privatised by the end of March.

Sir David Nicolson, a former chairman of British Airways and BTR and now chairman of VSEL, said he considered the results showed generally satisfactory progress.

He said the improvement arose from an increased volume of work which led to a better recovery of overheads. The company's cash position and interest cover during the period were better than budgeted.

Shareholders are to receive an interim dividend of 2p net per £1 share. The shares were offered for sale at 100p each. Yesterday they rose 20p to 180p, although most of the rise stemmed from unconfirmed reports that Saudi Arabia had approached the company with an order for submarines valued at £1bn.

As already known VSEL entered into a leasing arrangement in October for some £50m of assets forming part of the new warship construction facility at Barrow, now known as Devonshire Dock Hall.

Dr Rodney Leach, the company's chief executive, said yesterday that this would have a beneficial effect on cash flow and would reduce interest costs over the next 10 years by about £15m.

He added that VSEL had completed the contract for the prototype of a pressurised water

reactor that would power the next generation of British nuclear powered submarines.

The contract was completed on time and below its target cost which earned the company a bonus payment currently estimated at £500,000.

Presently, VSEL has outstanding work worth £1bn. Most of this is for the Ministry of Defence and includes the main construction contract for the first of the projected four Trident submarines. Contract discussions for the second submarine have commenced.

Today sees the launch of the company's new Type 2400 diesel electric submarine, to be named HMS Upholder.

In the buy-out, the biggest in the UK to date, 32 per cent of the employees bought shares in the company. Most bought blocks of 500, using interest-free loans and were given another 150 shares free.

See Lex

All-round growth lifts Drummond by 30%

In spite of major reorganisation and poor spring and summer weather affecting high street clothing sales, pre-tax profits of Drummond Group, manufacturer of worsted suitings formerly known as Stroud Riley Drummond, expanded by 30 per cent from £574,000 to £745,000 for the half year ended September 30 1986.

The result was from a 27 per cent advance in turnover to £12.66m from which operating profits of £597,500 (£815,000) were obtained. Pre-tax figures were after lower interest payable of £209,000 (£245,000).

Mr Stefan Simmonds, chairman, pointed out that the results were particularly satisfying also in view of the current disruption caused by the building of the group's new on-site finishing plant.

"There is no doubt that the poor spring and summer weather affected high street clothing sales, particularly retailer confidence in placing forward commitments. However, our current order book is ahead of the same period last year and I am confident of another useful increase in profits for the full financial year," the chairman stated.

All divisions performed well during the six months and Mr Simmonds said that in view of the continuing improvement, the directors are lifting the interim dividend by 20 per cent to 1.2p (1p)—last year's final payment was 2p.

After tax of £38,000, against £32,000, earnings are shown as 8.66p (6.72p) net and 7.87p (7.19p) on a nil basis.

Mr Simmonds stated that the group's major capital investment in its finishing plant was proceeding on schedule and should be fully commissioned by next March. He added that while it would not contribute to the current year's profits, "I anticipate significant benefits in years to come."

HUNGARIAN INTERNATIONAL BANK LIMITED
LONDON

The Board is pleased to announce for the year ended 30th September 1986 a pre-tax profit of £7,255,385. Extracts from the consolidated balance sheet are set out below.

	30th September 1986
Issued Fully Paid Capital	£10,000,000
Reserves	10,749,514
Primary Capital Undated Loan Stock	10,369,858
Subordinated Unsecured Loan Stock 1994	2,000,000
Primary Capital	£33,119,372
Deferred Taxation	6,290,726
Total Capital Resources	£39,410,098
Balance Sheet Total	£233,412,055

During 1986 there has been a major increase in Primary Capital. The Bank continues to maintain a high level of liquidity and low gearing and the Directors are optimistic that 1987 will be another successful year.

Pre-Tax Profits Up	17%
Primary Capital Up	67%
Balance Sheet Total Up	10%

The above statement does not constitute full accounts under the Companies Act 1985. The auditors have reported on the full accounts which will be delivered to the Registrar of Companies in due course. Please contact the Company Secretary for a copy of the 1986 Accounts. Telephone: 01-606 5371. Address: Princes House, 95 Gresham Street, London EC2V 7LU.

Arlen sharply higher at £0.5m

Arlen, the electrical and electronic manufacturer, achieved the substantial profits increase it was looking for in the half year ended September 30 and is returning to the dividend list after an absence of five years.

At the pre-tax level, profits surged from £2,500 to £501,600 from a turnover 48 per cent ahead at £5m. The interim dividend is 0.5p net per 20p share.

Along with the announcement the company said it had agreed to acquire Scandinavian Decor, a maker of quality lighting products, for a total 585,000 shares.

Mr Leslie Hancock, chairman and chief executive, said yesterday that the interim results confirmed the profit increase to which he looked forward in his statement for the 1985-86 year.

He said the company's performance continued to show all-round improvement.

The electrical companies experienced strong underlying demand during what is normally a quiet trading period reflecting the success of a more aggressive marketing policy.

The introduction of new products also played a part in boosting electrical sales during the summer. Attention is being given to extending the product range of the Columbia companies which should show benefits in expanding the business.

As a result, group sales and profits should be spread more evenly between the first and second halves of the financial year.

The directors expect pre-tax profits for the second half of the current year to be not less than those for the first six months.

The acquisition will complement Arlen's increasing development and manufacturing activities in the quality lighting area.

comment
Arlen's return to the dividend

list marks the completion of its rehabilitation, and those who bought its penny shares two years ago have every reason to be feeling well pleased with the 102p share price now. On the electricals side, sales have gone up by 20 per cent against a sluggish market background and higher margins are coming through, such as infra-red intruder alarms and low-voltage display lighting. On the acquisitions front, Columbia is already providing 50 per cent of group profits and Scandinavian Decor looks an attractive move into domestic lighting. Recovery is one thing and sustained expansion another, so shareholders are right to ask whether Arlen's prospective p/e of 10 is going to be justified beyond this year's likely outturn of £1.2m, but the combination of organic growth and the acquisitions policy suggests that it is.

BOARD MEETINGS

The following companies have notified dates of board meetings to the Stock Exchange. Such meetings are usually held for the purpose of considering dividends. Official indications are not available as to whether the dividends are interim or final and the subdivisions shown below are based mainly on last year's statements.

TODAY		
Amalgamated Group, Acland	Dec 3	Amalgamated Group, Acland
Gold Mining, C. H. Industries, Cape	Dec 3	Gold Mining, C. H. Industries, Cape
Industries, County and New Town	Dec 3	Industries, County and New Town
Properties, OBE Technology, Durban	Dec 3	Properties, OBE Technology, Durban
Resources, Deas, Evans of Leeds, FKI	Dec 3	Resources, Deas, Evans of Leeds, FKI
Electricity, Illingworth Morris, Jarvis	Dec 3	Electricity, Illingworth Morris, Jarvis
Porter, London Investment Trust, John	Dec 3	Porter, London Investment Trust, John
Wichel, Design, Monks and Crane,	Dec 3	Wichel, Design, Monks and Crane,
Premier Consolidated Offsheds, United	Dec 3	Premier Consolidated Offsheds, United
Leasing	Dec 3	Leasing
FUTURE DATES		
Amalgamated Group, Acland	Dec 3	Amalgamated Group, Acland
AAV	Dec 3	AAV
Bevaico	Dec 8	Bevaico
Booth Industries	Dec 8	Booth Industries
Compton International	Dec 22	Compton International
Hickling-Pantecost	Dec 12	Hickling-Pantecost
Hunter, Haphi	Dec 4	Hunter, Haphi
Jays Haul	Dec 17	Jays Haul
Nottingham Brick	Dec 11	Nottingham Brick
Whitworth	Dec 9	Whitworth
Crystalite	Dec 9	Crystalite
Gobson Park Industries	Dec 9	Gobson Park Industries
Grasdale	Dec 9	Grasdale
Petroleum	Dec 9	Petroleum
Tate and Lyle	Dec 9	Tate and Lyle
Williams (John) of Cardiff	Dec 11	Williams (John) of Cardiff

PATERSON ZOCHONIS

Record profits for 1986

Summary of Results

	Year ended 31st May	1986	1985
Turnover		£241.7m	£276.6m
Profit before tax		£42.4m	£38.6m
Earnings per share		42.97p	38.61p
Total dividend per share		6.50p	5.90p

Highlights 1985/86: In a year when, as a result of exchange rate movements, the contribution to group profits from the Nigerian operations has declined, it is very encouraging to be able to report improvements elsewhere in the group which more than offset this fall.

Considering the difficulties under which they were operating the Nigerian companies did remarkably well. The new economic measures introduced in September should help to achieve a satisfactory rescheduling of the country's foreign exchange obligations which in turn should allow time for the local economy to benefit from the relaxation of controls.

Profits of the Cussors group showed significant improvement. The UK companies made further gains in market share and continued to benefit from favourable raw material prices. Record profits were made in Australia while the Kenya company maintained its position and both these subsidiaries have plans to increase their production capacities.

Current year: The movement in Nigerian exchange rates means that group profits of the first half-year are expected to be lower than the corresponding period of last year. Results of the second half-year should be comparable with the second half of 1985/86.



PATERSON ZOCHONIS PLC, BRIDGEWATER HOUSE, 60 WHITWORTH STREET, MANCHESTER M1 6LU. Africa, United Kingdom & Europe, Australia & Far East



This advertisement is issued in compliance with the requirements of the Council of The Stock Exchange.

London & Edinburgh Trust PLC

(Registered in England No. 1036429)

Issue of £43,179,225 6 per cent. Convertible Cumulative Preference Shares of £1 each at par in connection with the acquisition of

THE NINETEEN TWENTY-EIGHT INVESTMENT TRUST plc

Application has been made to the Council of The Stock Exchange for the above mentioned shares to be admitted to the Official List.

Particulars of the 6 per cent. Convertible Cumulative Preference shares of £1 each are available in the statistical services of Exel Financial Limited and copies may be obtained during normal business hours on any weekday (excluding Saturdays and public holidays) up to and including 15th December 1986 from:-

London & Edinburgh Trust PLC
243 Knightsbridge, London SW7 1DH

Barclays de Zoete Wedd Limited
Ebbage House, 2 Swan Lane,
London EC4R 3TS

Bank of Scotland
New Issues Department,
3rd Floor, Broad Street House,
55 Old Broad Street, London EC2P 2HL

2nd December 1986

BRYANT

IMPORTANT NOTICE

for holders of provisional allotment letters in

Bryant Holdings plc
FROM YOUR DIRECTORS

As you know Bryant Holdings plc ("Bryant") is currently subject to offers by English China Clays P.L.C.

If you have purchased new Bryant ordinary shares in provisional allotment letter form under the rights issue announced on 13th October, 1986 your name may not yet be included on the Bryant share register. However, if you wish to ensure that you receive copies of all documents issued by your company, you should register your name and address as soon as possible with:

Chris Bryant
Bryant Holdings plc
Cranmore House,
Cranmore Boulevard,
Solihull, West Midlands,
B90 4SD.

Telephone: 021-704 5111

This notice is published by Robert Fleming & Co. Limited on behalf of Bryant. The directors of Bryant are responsible for the information contained in this notice. To the best of their knowledge and belief (having taken all reasonable care to ensure that such is the case) the information contained in this notice is in accordance with the facts. The directors of Bryant accept responsibility accordingly.

BRYANT

AUTHORISED UNIT TRUSTS

Table listing various unit trusts such as Abbey Unit Trust, Allied Family Unit Trusts PLC, and others, including their managers and performance data.

FT UNIT TRUST INFORMATION SERVICE

Main table of unit trusts organized by manager, including names like Bridge Fund Managers, FSI Investment Managers, and others, with columns for fund names and performance metrics.

Continuation of the unit trust information table, listing funds managed by various companies like Royal Trust Co. and others.

JOTTER PAD advertisement with a grid and promotional text: 'If you wish to purchase this space for your company message please call Daniel Russell, 01-248 8000.'

FT CROSSWORD PUZZLE 6,192

Crossword puzzle grid with clues for Across and Down words.

Answers to the crossword puzzle, including 'ACROSS: 1 One vehicle backing up to another at a queue (3)', 'DOWN: 1 Cut second part out (6)', etc.

INSURANCES

Table listing various insurance companies and their services, including Abbey Life Assurance Co Ltd, Allianz, and others.

AUTHORISED UNIT TRUST & INSURANCES

Main table listing various insurance and unit trust products, including company names, addresses, and financial details. The table is organized into multiple columns and rows, with headers for different categories of products.

Handwritten signature or mark at the bottom right of the page.

INSURANCE, OVERSEAS & MONEY FUNDS

Handwritten note in Arabic script: "معلومات إضافية"

Table listing various insurance and financial services, including company names and contact information.

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Table listing various insurance and financial services, including company names and contact information.

OFFSHORE AND OVERSEAS

Table listing various offshore and overseas financial services, including company names and contact information.

MONEY MARKET TRUST FUNDS

Table listing various money market trust funds, including fund names and performance metrics.

MONEY MARKET BANK ACCOUNTS

Table listing various money market bank accounts, including bank names and account details.

TRADITIONAL OPTIONS

Table listing various traditional options, including option names and details.

MANAGEMENT SERVICES

Table listing various management services, including service names and providers.

NOTES

Textual notes and commentary regarding the financial data and market conditions.

TRADITIONAL OPTIONS

Table listing various traditional options, including option names and details.

COMMODITIES and AGRICULTURE

Oil companies lose Brent market control to Wall St

CONTROL OF the Brent market has passed from the major oil companies which produce oil from the North Sea to the big Wall Street trading firms...

A different kind of trading expertise from the oil majors has taken over the Brent market. He said that over the next few months J. Aron would continue to expand its oil trading operations...

Report says dollar fall may not lift metals

THE FALL in the value of the US dollar in 1985-86 will not necessarily boost dollar industrial commodity prices...

LONDON MARKETS

THE DOLLAR'S weakness pushed gold prices up against a 1985-86 barrier. It fell back to \$250 on the day at \$391.75 a troy ounce...

INDICES

Table with columns: Index Name, Date, Value, Change, % Change. Includes DOW JONES, FTSE 100, etc.

MAIN PRICE CHANGES

Table showing price changes for various commodities like Tin, Lead, Zinc, etc.

US MARKETS

SUGAR FUTURES closed sharply higher after a swift technical rally in late morning which took prices in the active March contracts to the highest levels in 11 sessions...

Table for COTTON 50,000 lb. cents/lb. with columns for Month, High, Low, Prev.

Table for HEATING OIL 42,000 US gallons, cents/US gallon.

Table for ORANGE JUICE 15,000 lb. cents/lb.

Table for SILVER 5,000 troy oz. cents/troy oz.

Table for LIVE CATTLE 40,000 lb. cents/lb.

Table for LIVE HOGS 30,000 lb. cents/lb.

Table for MAIZE 5,000 bu. min. cents/500b.

Table for SOYABEAN MEAL 100 tons, \$/ton.

Table for SOYABEAN OIL 60,000 lb. cents/lb.

Table for COCAOA 10 tonnes, \$/tonne.

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Falklands fish plan emerging

DETAILS ARE emerging about Britain's plans for the new 150-mile fishing zone round the Falklands...

The row also put the European Commission in a potentially embarrassing spot. Under Britain's 1973 Accession Treaty the Falkland Islands are clearly defined as an Overseas Territory...

ALUMINIUM

Official closing (am): Cash 778-8.5 (778.5), three months 794-2.5 (794.5), six months 808-2.5 (808.5)...

COPPER

Official closing (am): Cash 228-2.5 (228.5), three months 232-2.5 (232.5), six months 236-2.5 (236.5)...

COFFEE

Robusta prices consolidated within a narrow range above recent lows. The report forecasts a weak performance for the 1987/88 season...

INDONESIAN TIN output 'below target'

INDONESIA'S production of tin concentrate is expected to rise to 25,000 tonnes in 1986 from 22,413 last year...

LEAD

Official closing (am): Cash 242-2.5 (242.5), three months 246-2.5 (246.5), six months 250-2.5 (250.5)...

NICKEL

Official closing (am): Cash 254-2.5 (254.5), three months 258-2.5 (258.5), six months 262-2.5 (262.5)...

North American pulp prices to rise further

NORTH AMERICAN pulp producers are to raise their posted prices again early next year...

Tea prices down again

TEA PRICES fell at the London auction yesterday for the third week in succession amid a significant weakening of demand...

LONDON METAL EXCHANGE WAREHOUSE STOCKS

Table showing warehouse stocks for Aluminium, Copper, Lead, Nickel, Zinc, Silver.

GOLD

Daily rate 527 to 531.32 on the London bullion market. Trading was volatile, with New York traders taking the opportunity to sell into the profits...

POTATOES

An unchanged opening gave way to a sharp rise on the day as traders and exporters sought to secure supplies for the four-month period...

Farmers learn to make do and mend

WHEN I visited the Royal Smithfield Show on Sunday I was impressed by the number of machinery manufacturers who asked me if I thought the better harvest in some sectors and the increase in UK farm income since 1985 would induce farmers to invest in more machinery over the coming year...

Local dealers do not like this principle. I suffered from it myself when I had a dealership which I sold many years ago. As a footnote to the above, 30 years ago my wheat was produced in the locality of the machine built in 1930 driven by a tractor of 1919 vintage and cut with a binder made at the turn of the century...

I found out a lot about the principles of farm trading from this experience. The crucial question after the choice has been made is how to pay for it. Here the manufacturers are well aware of the effects of the withdrawal of the tax allowances and all have leasing schemes which, on the face of it, charge interest rates of between 2 and 4 per cent...

Local dealers do not like this principle. I suffered from it myself when I had a dealership which I sold many years ago. As a footnote to the above, 30 years ago my wheat was produced in the locality of the machine built in 1930 driven by a tractor of 1919 vintage and cut with a binder made at the turn of the century...

GRAINS

LONDON GRAINS—Wheat: US dark northern winter 1.15 per cent Dec 106.00, Jan 107.00, Feb 108.00, March 109.00...

WHEAT

Official closing (am): Cash 111.00 (111.00), three months 112.00 (112.00), six months 113.00 (113.00)...

BARLEY

Official closing (am): Cash 111.00 (111.00), three months 112.00 (112.00), six months 113.00 (113.00)...

RYE

Official closing (am): Cash 111.00 (111.00), three months 112.00 (112.00), six months 113.00 (113.00)...

SOYABEAN MEAL

Official closing (am): Cash 254-2.5 (254.5), three months 258-2.5 (258.5), six months 262-2.5 (262.5)...

TEA

31,483 packages with an offer to the London tea auction, including 4,800 packages in the offshore section...

CRUDE OIL

Arab Light: 23.70-10.00 (+0.00), Arab Medium: 23.70-10.00 (+0.00), W.T.I. (Brent): 23.70-10.00 (+0.00)...

PRODUCTS

Premium gasoline: 131.10 (+1.00), Heavy fuel oil: 123.12 (+1.00)...

GAS OIL FUTURES

Official closing (am): Cash 111.00 (111.00), three months 112.00 (112.00), six months 113.00 (113.00)...

HEAVY FUEL OIL

Official closing (am): Cash 111.00 (111.00), three months 112.00 (112.00), six months 113.00 (113.00)...

MEAT

MEAT COMMISSION—Average fat-cattle 52.5p per lb (+0.70)...

COTTON

LIVERPOOL—Soot and shipment sales for the week commencing November 24 amounted to 303 tonnes...



FARMER'S VIEWPOINT By John Cherrington

Vertical text on the right edge of the page, including 'Financial Times', 'EXCHANGES', 'Dollar near', 'UK rates', 'weak', 'FOREIGN EXCHANGES', 'UK MARKETS', 'UK rates', 'weak', 'FOREIGN EXCHANGES', 'UK MARKETS', 'UK rates', 'weak'.

CURRENCIES, MONEY & CAPITAL MARKETS

FOREIGN EXCHANGES

Dollar near 6-year D-Mark low

THE DOLLAR fell to its lowest closing level against the D-Mark for nearly six years, but rose slightly against the yen, suggesting that the US agreement with Japan to stabilize exchange rates remains intact, but is coming under increasing pressure.

The D-Mark gained ground against the dollar, as the political scandal involving US arms sales to Iran continued to undermine confidence in the dollar. Dealers suggested the US currency could touch DM 1.90 by the year-end, but the dollar finished above the day's low on better than expected US dollar sales.

FINANCIAL FUTURES

Gilts remain depressed

GILT PRICES lost ground in the London International Financial Futures Exchange yesterday. Sterling's weakness appeared to be the primary cause for concern although the pound's decline itself was exacerbated by a lower dollar Friday's weaker trend and unfavourable comment over the weekend.

degree of short covering back to a close of 107-14, still down from Friday's close of 108-08. Three-month sterling deposits were slightly weaker. A bulk of the day's trading took place in the March contract although current uncertainty and proximity of Christmas and the year end encouraged some speculators to wait until January before making a commitment.

On Bank of England figures the dollar's index fell to 108.7 from 110.0. STERLING—Trading range against the dollar in 1986 is 1.5555 to 1.7400. November average 1.6227. Compared with 78.8 six months ago. Sterling suffered sharp early falls in line with the dollar, but recovered to close 45 points higher at \$1.6375-1.6385, and at \$2.3225 against \$2.3225. The pound rose to 162.50 unchanged at DM 2.5275 and SF 2.3550, but fell to FF 9.26 from FF 9.2680.

Table with columns: Country, Currency, Rate, % change, % change 6 months, % change 12 months. Includes US, Canada, UK, France, Germany, etc.

EMU EUROPEAN CURRENCY UNIT RATES

Table with columns: Country, Currency, Rate, % change, % change 6 months, % change 12 months. Includes Belgium, France, Germany, Italy, etc.

LIFFE LONG GILT FUTURES OPTIONS

Table with columns: Strike, Call, Put, Last, etc. for various maturity dates.

STERLING INDEX

Table with columns: Dec 1, Dec 2, Dec 3, Dec 4, Dec 5, Dec 6, Dec 7, Dec 8, Dec 9, Dec 10, Dec 11, Dec 12. Includes 3-month, 6-month, 12-month rates.

FOUND SPOT—FORWARD AGAINST THE POUND

Table with columns: Dec 1, Dec 2, Dec 3, Dec 4, Dec 5, Dec 6, Dec 7, Dec 8, Dec 9, Dec 10, Dec 11, Dec 12. Includes US, Canada, UK, etc.

LIFFE US TREASURY BOND FUTURES OPTIONS

Table with columns: Strike, Call, Put, Last, etc. for various maturity dates.

LIFFE FT-SE 100 INDEX FUTURES OPTIONS

Table with columns: Strike, Call, Put, Last, etc. for various maturity dates.

CURRENCY RATES

Table with columns: Dec 1, Dec 2, Dec 3, Dec 4, Dec 5, Dec 6, Dec 7, Dec 8, Dec 9, Dec 10, Dec 11, Dec 12. Includes various currencies and their rates.

DOLLAR SPOT—FORWARD AGAINST THE DOLLAR

Table with columns: Dec 1, Dec 2, Dec 3, Dec 4, Dec 5, Dec 6, Dec 7, Dec 8, Dec 9, Dec 10, Dec 11, Dec 12. Includes various currencies and their rates.

LIFFE EURO-DOLLAR FUTURES OPTIONS

Table with columns: Strike, Call, Put, Last, etc. for various maturity dates.

LIFFE SWISS FRANK FUTURES OPTIONS

Table with columns: Strike, Call, Put, Last, etc. for various maturity dates.

CURRENCY MOVEMENTS

Table with columns: Dec 1, Dec 2, Dec 3, Dec 4, Dec 5, Dec 6, Dec 7, Dec 8, Dec 9, Dec 10, Dec 11, Dec 12. Includes various currencies and their movements.

EURO-CURRENCY INTEREST RATES

Table with columns: Dec 1, Dec 2, Dec 3, Dec 4, Dec 5, Dec 6, Dec 7, Dec 8, Dec 9, Dec 10, Dec 11, Dec 12. Includes various interest rates.

LIFFE DOLLAR INDEX FUTURES OPTIONS

Table with columns: Strike, Call, Put, Last, etc. for various maturity dates.

LIFFE JAPANESE YEN (NYM) FUTURES OPTIONS

Table with columns: Strike, Call, Put, Last, etc. for various maturity dates.

OTHER CURRENCIES

Table with columns: Mar 86, Dec 86, Dec 85. Includes various currencies and their rates.

EXCHANGE CROSS RATES

Table with columns: Dec 1, Dec 2, Dec 3, Dec 4, Dec 5, Dec 6, Dec 7, Dec 8, Dec 9, Dec 10, Dec 11, Dec 12. Includes various exchange rates.

LIFFE 100 INDEX

Table with columns: Dec 1, Dec 2, Dec 3, Dec 4, Dec 5, Dec 6, Dec 7, Dec 8, Dec 9, Dec 10, Dec 11, Dec 12. Includes various index values.

LIFFE 3-MONTH EURO-DOLLAR

Table with columns: Dec 1, Dec 2, Dec 3, Dec 4, Dec 5, Dec 6, Dec 7, Dec 8, Dec 9, Dec 10, Dec 11, Dec 12. Includes various interest rates.

MONEY MARKETS

UK rates firmer on weak pound

INTEREST RATES were slightly firmer yesterday as attention centred on the pound's weakness. There was little else to influence sentiment and dealers saw little prospect of any change before the Christmas week. Sterling's weaker trend was the primary cause for concern although with the flotation of British Gas and next week's Opec meeting, there appeared to be little chance of the authorities supporting the pound through a rise in base rates at least until these two factors are out of the way.

FT LONDON INTERBANK FIXING

Table with columns: Dec 1, Dec 2, Dec 3, Dec 4, Dec 5, Dec 6, Dec 7, Dec 8, Dec 9, Dec 10, Dec 11, Dec 12. Includes various interbank rates.

LIFFE 6-MONTH EURO-DOLLAR

Table with columns: Dec 1, Dec 2, Dec 3, Dec 4, Dec 5, Dec 6, Dec 7, Dec 8, Dec 9, Dec 10, Dec 11, Dec 12. Includes various interest rates.

LIFFE 9-MONTH EURO-DOLLAR

Table with columns: Dec 1, Dec 2, Dec 3, Dec 4, Dec 5, Dec 6, Dec 7, Dec 8, Dec 9, Dec 10, Dec 11, Dec 12. Includes various interest rates.

UK clearing bank base leading rate 11 1/2 per cent since October 15

Three-month interbank money finished unchanged at 11 1/2 per cent while one-year money was higher at 11 1/2-11 3/4 per cent. Over the week, the market with cash moving up to 10 1/2-10 3/4 per cent and closed at 10 1/2-10 3/4 per cent. Closing balances were taken at 11 1/2 per cent although the Bank appeared to give more help than the published forecast.

LONDON MONEY RATES

Table with columns: Dec 1, Dec 2, Dec 3, Dec 4, Dec 5, Dec 6, Dec 7, Dec 8, Dec 9, Dec 10, Dec 11, Dec 12. Includes various money rates.

MONEY RATES

Table with columns: Dec 1, Dec 2, Dec 3, Dec 4, Dec 5, Dec 6, Dec 7, Dec 8, Dec 9, Dec 10, Dec 11, Dec 12. Includes various money rates.

LIFFE 12-MONTH EURO-DOLLAR

Table with columns: Dec 1, Dec 2, Dec 3, Dec 4, Dec 5, Dec 6, Dec 7, Dec 8, Dec 9, Dec 10, Dec 11, Dec 12. Includes various interest rates.

EUROPEAN OPTIONS EXCHANGE

Table with columns: Series, Vol, Last, Vol, Last, Vol, Last, Stock. Includes various options data.

BASE LENDING RATES

Table with columns: Bank, Rate, Bank, Rate, Bank, Rate. Includes various bank lending rates.

WORLD VALUE OF THE POUND

The table below gives the latest available rate of exchange for the pound against various currencies on December 1, 1986. In some cases rates are nominal. Market rates are the average of buying and selling rates where they are shown to be otherwise. In some cases market rates have been calculated from those of foreign currencies to which they are tied.

Large table with columns: COUNTRY, CURRENCY, VALUE OF £ STERLING, COUNTRY, CURRENCY, VALUE OF £ STERLING. Includes various countries and their exchange rates.

*Rate is the transfer market (contracted). **Now one official rate. (1) Essential goods. (2) Preferential rate for priority imports such as foodstuffs. (3) Preferential rate for Public Sector Debt and Essential Imports. (4) Preferential rate. (5) Free rate for luxury imports, remittances of money abroad and foreign travel. (6) Parallel rate. (7) Banknote rate. (8) Rate for exports. (9) Highly valued business transactions. (10) Uganda, August 24; Single Exchange Rate introduced. (11) Nigeria, November 17; Auction price for dollar 3.4599. (12) Hungary, September 23; Foreign dollar by 5%. (13) Guinea Republic—rate, new exchange rate announced. (14) Brazil—1 cruzeiro equals 1,000 centavos.

BRITISH FUNDS

Table of British Funds with columns for Name, Price, Dividend, and Yield. Includes sections for 'Shorts' (lives up to five years) and 'Five to Fifteen Years'.

AMERICANS - Cont.

Table of American Stocks with columns for Name, Price, Dividend, and Yield. Includes sections for 'Shorts' and 'Five to Fifteen Years'.

LONDON SHARE SERVICE

BUILDING, TIMBER, ROADS - Cont.

Table of Building, Timber, and Roads stocks with columns for Name, Price, Dividend, and Yield.

ENGINEERING - Continued

Table of Engineering stocks with columns for Name, Price, Dividend, and Yield.

INDUSTRIALS - Continued

Table of Industrial stocks with columns for Name, Price, Dividend, and Yield.

Five to Fifteen Years

Table of Five to Fifteen Years funds with columns for Name, Price, Dividend, and Yield.

CANADIANS

Table of Canadian stocks with columns for Name, Price, Dividend, and Yield.

DRAPERY & STORES - Cont.

Table of Drapery & Stores stocks with columns for Name, Price, Dividend, and Yield.

ELECTRICALS

Table of Electrical stocks with columns for Name, Price, Dividend, and Yield.

FOOD, GROCERIES ETC

Table of Food, Groceries, etc. stocks with columns for Name, Price, Dividend, and Yield.

Index-Linked

Table of Index-Linked funds with columns for Name, Price, Dividend, and Yield.

BANKS, HP & LEASING

Table of Banks, HP & Leasing stocks with columns for Name, Price, Dividend, and Yield.

CHEMICALS, PLASTICS

Table of Chemicals, Plastics stocks with columns for Name, Price, Dividend, and Yield.

GRAPERY AND STORES

Table of Grapery and Stores stocks with columns for Name, Price, Dividend, and Yield.

HOTELS AND CATERERS

Table of Hotels and Caterers stocks with columns for Name, Price, Dividend, and Yield.

INT. BANK AND D&S'S GOVT STERLING ISSUES

Table of International Bank and D&S's Government Sterling Issues with columns for Name, Price, Dividend, and Yield.

BEERS, WINES & SPIRITS

Table of Beers, Wines & Spirits stocks with columns for Name, Price, Dividend, and Yield.

INDUSTRIALS (Miscel.)

Table of Industrial (Miscellaneous) stocks with columns for Name, Price, Dividend, and Yield.

ENGINEERING

Table of Engineering stocks with columns for Name, Price, Dividend, and Yield.

AMERICANS

Table of American stocks with columns for Name, Price, Dividend, and Yield.

CORPORATION LOANS

Table of Corporation Loans with columns for Name, Price, Dividend, and Yield.

COMMONWEALTH & AFRICAN LOANS

Table of Commonwealth & African Loans with columns for Name, Price, Dividend, and Yield.

LOANS

Table of Loans with columns for Name, Price, Dividend, and Yield.

Building Societies

Table of Building Societies with columns for Name, Price, Dividend, and Yield.

Public Board and Ind.

Table of Public Board and Industrial stocks with columns for Name, Price, Dividend, and Yield.

FOREIGN BONDS & RAILS

Table of Foreign Bonds & Rails with columns for Name, Price, Dividend, and Yield.

AMERICANS

Table of American stocks with columns for Name, Price, Dividend, and Yield.

BUILDING, TIMBER, ROADS

Table of Building, Timber, and Roads stocks with columns for Name, Price, Dividend, and Yield.

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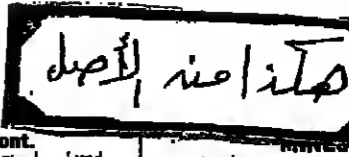
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INDUSTRIALS - Continued. Table listing various industrial stocks with columns for stock name, price, and other financial metrics.

LEISURE - Continued. Table listing leisure-related stocks such as hotels, entertainment, and travel agencies.

PROPERTY - Continued. Table listing real estate and property-related stocks.

INVESTMENT TRUSTS - Cont. Table listing various investment trusts and funds.

FINANCE, LAND - Cont. Table listing financial institutions, banks, and land-related stocks.

Overseas Traders, Plantations, and Mines. Table listing international trading companies, plantation firms, and mining operations.

INSURANCE. Table listing various insurance companies and their stock prices.

PROPERTY. Table listing property-related stocks, including real estate developers and landlords.

SHOES AND LEATHER. Table listing companies in the footwear and leather goods industry.

TEXTILES. Table listing textile manufacturing companies.

TOBACCO. Table listing tobacco companies.

Regional and Irish Stocks. Table listing stocks from various regions and Ireland, including a section for 'Recent Issues' and 'Rights'.

Notes and legal disclaimers at the bottom of the page, including information about the publication and its liability for the data provided.

LONDON STOCK EXCHANGE

Guinness inquiry sends new tremor through equities and easier pound weakens Gilts

Account Dealing Dates
Option
*First Declared Last Account
Dealings (Days Dealings) Day

Search developments on both domestic and international fronts hit the UK securities markets yesterday. Weakness in sterling and in US bond markets took more than a point off British Government bond prices, and the equity market was knocked back on its heels when the Department of Trade announced that it was inquiring into the affairs of Guinness, the brewing giant which this year acquired Distillers in a bitter takeover struggle.

A wave of selling hit Guinness stock, which fell by more than 40p to 20.20, as 20m shares changed hands. While the Guinness directors stressed that no reason had been given for the Trade Department's inquiry, the move rang alarm bells in the stock market, which has been unremoved by the Boesly insider trading case in the US, and the Collier incident in the UK.

The stock market already weakened by losses in the gilt-edged market, fell sharply after the Guinness news, and closed virtually unchanged at 1272.5. The FT-SE 100 index fell 18.9 to 1617.8, and the FT Ordinar Index at 1272.5 ended 19.7 down. With the exception of Guinness and some of the speculative issues, the day's trading was quiet.

Among the blue chips, the major oils held steady despite the nervousness ahead of the OPEC meeting in the middle of the month. Losses in BAT Industries, Imperial Chemical Industries and G&A Holdings were modest, and Unilever formed against the trend. London stood up well against the early fall on Wall Street, but the uptick on the brewing sector drove Bass shares downwards. Grand Metropolitan, a speculative favourite last week, gave ground, as did Hanson Trust, which has profit figures due.

The fall in both sterling and the dollar brought a weak opening in Government issues, and losses were soon extended. Once again, the lead was set by heavy trading in the LIFFE gilt futures contract—the March contract, now the centre of attention, closed nearly one point off.

However, there were buyers as well as sellers for gilts, and prices ended 1/2 point above the day's lows. The sterling exchange rate index remains comfortably above the 67 level which in the long run is regarded as its support point. By the close, the FT Government Securities index showed a fall of 0.82 to 81.13.

Morgan Grenfell dull

Morgan Grenfell succumbed to persistent nervousness and closed 26p lower at 86p with sentiment unsettled by news of the DTI investigation at Guinness. A few weeks ago, Mr Geoffrey Collier, head of Morgan's securities operations, resigned over alleged insider-trading dealings. Elsewhere, Standard Chartered advanced to 82p before closing 9p higher at 81.9p amid reports that Mr

Tan Sri Khoo Tech Puan, who resigned from the Board last week as a result of the National Bank of Brunei scandal, had sold his 0.28 per cent stake in the bank to Mr Robert Helmes & Co's Bell Group, which already owns a 10 per cent shareholding. The clearing banks drifted down for want of support. Midland lost 7p at 547p and Lloyds relinquished 6p at 422p. Barclays eased 5p at 468p.

Apart from Equity and Law, which improved a few pence more to 327p on further consideration of the increased stake recently taken in the company by Mr Ron Brierley's IEP Securities.

1986 Channel Islands staged an impressive debut in the Unlisted Securities Market, the shares, offered at 70p, opened at 96p and settled at 90p, a first-day premium of 20. Last week's highly successful USM newcomer Glenlivet encountered occasional profit-taking and closed 4p at 46p.

The drinks sector was completely overshadowed by Guinness which fell to 83p. Many were expected to see the DTI investigation. Prices drifted lower in sympathy and Bass, which reported annual figures on Thursday, closed 11 down at 75p.

The Building Society experienced its quietest session for some time as the leaders drifted easier in the absence of buying interest. VSEI, which Adelphia Securities recently increased its holding, were finally 6p off at 64p. Profit-taking in the wake of the excellent results left BPB Industries stock 4p lower at 53p. Master was 2 off at 123p following a broker's lunch. Elsewhere, James Latham advanced a penny to 23p, after 28p, ahead of tomorrow's interim results, but Medical Bear slipped 10 to 30p following Friday's speculative gain. Tilbury Group gained 10 to 20p on renewed suggestions of a bid from Rain Industries, which responded to 104p in response to Press comment.

Stores lower

Sellers bled away among leading Stores. Storehouse lost 6p at 280p as did Barlow at 261p, while Harris Greenaway declined 5p at 213p and Liffie Gift features contracted 12p. Against the trend, D&S Simpson "A" jumped 30 to 415p in response to revived speculative demand in a thin market.

Over 2m GEC shares changed hands yesterday ahead of today's publication of the interim results and the close was 5p lower at 179p. Other Electrical majors results, but Medical Bear slipped 10 to 30p following Friday's speculative gain. Tilbury Group gained 10 to 20p on renewed suggestions of a bid from Rain Industries, which responded to 104p in response to Press comment.

Weekend press comment concerning a possible bid for the company stimulated another lively session in the City. However, the price, some 25p higher on Friday, settled 6p down at 474p as 8.7m shares changed hands. Trusthouse Forte were a quieter market and settled 5p cheaper at 87p. Bid speculation boosted Garfunkels 6

FINANCIAL TIMES STOCK INDICES
Table with columns for Dec 1, Nov 28, Nov 27, Nov 26, Nov 25, year ago, 1986 High/Low, and Since Completion High/Low. Includes sections for Government Secs, Fixed Interest, Gold Mines, S.E. ACTIVITY, and Opening/Closing times.

LONDON REPORT AND LATEST SHARE INDEX: TEL. 01-246 8026

With the exception of Hawk, which ran back 4 to 456p, leading Engineers were rarely altered. VSEI, Consistum provided the outstanding feature of the day in secondary issues, advancing 20 to 180p in response to the sharp recovery in the interim. Baker Perkins, scheduled to reveal interim figures on Thursday, gave up 4 to 238p. Mr Hall Engineering where Roger Gatten and associates hold a 0.6 per cent stake gained 4 to 240p. Forter Chadburn revived with a rise of 10 to 308p, but Glywedd, the subject of a broker's recommendation last week, encountered profit-taking and gave up 6 to 314p.

Foods showed a majority of small falls as trading volume contracted. Tite and Lyle annual results due tomorrow, softened 4 to 576p, while Watmore Mackintosh shed 5 to 414p and Cadbury Schweppes eased a couple of pence to 180p. Reckitt Benetton, a firm market of late on takeover hopes, came back 3 to 283p and Unigate lost 4 at 305p. Against the trend, Christian Salvage, a firm market of late on takeover hopes, came back 3 to 283p and Unigate lost 4 at 305p.

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to 150p, but profit-taking left Kennedy Brookes 7 1/2 off at 280p. Newspaper comment on the BTR/Pilkington bid situation prompted weakness in the former which fell away to close 10 lower at 285p; 6m shares were traded yesterday. Pilkington closed a penny cheaper at 616p. Among the other miscellaneous industrial leaders, Traill House closed 5 1/2 lower at 282p awaiting today's preliminary figures. The group's results are expected to have been affected by the slump in oil prices and analysts are forecasting pre-tax profits in the region of £15m against £12.5m for 1985. BOC, also reporting annual results today, held relatively steady at 340p; pre-tax profits are estimated at £190m.

The company, however, has already announced that a write-down of £128m on its investment in graphite electrodes will be taken above the line. Reed International came off at 283p, down 10, while US favourite Glaxo closed cheaper at 910p. Elsewhere, weekend press comment stimulated demand for Tote, 29 up at 154p and Areson, 4 to the good at 52p. Flanagan moved up 7 to 185p in response to the good interim figures and acquisition news, but Nash Industries, a good market last week on asset injection hopes, encountered occasional profit-taking and reacted 15 to 116p. Speculative buying left Lawtex 7 higher at 63p, while Redfern Glass, still reflecting speculation about the IEP Securities stake, rose 5 more to 329p.

Weekend press comment concerning a possible bid for the company stimulated another lively session in the City. However, the price, some 25p higher on Friday, settled 6p down at 474p as 8.7m shares changed hands. Trusthouse Forte were a quieter market and settled 5p cheaper at 87p. Bid speculation boosted Garfunkels 6

come of bid disclosures, lost 16 at 280p. Abaco were a shade easier at 644p following acquisition news, but Lysate rose 10 to 323p in reply to the good half-year figures. Grainger Trust rose 10 to 615p and Parlane, interim results due on Friday, added a penny to 87p. P & O were one of the few Alpha stocks to resist the weakness. Having under-performed recently, the stock responded strongly to the possibility that the group was in discussions with Nomura regarding a share listing in Tokyo. Turco, which announced a 4m share and P & O were finally a net 12 higher at 516p.

After-the-event selling took a toll on selected textiles. Continental retreated 6 to 317p, Lister gave 6 at 127p and Drummond dropped 10 to 139p, the last named despite good interim figures and a confident statement. R. Smallshaw Kaitway, however, continued to prosper from Friday's mid-term results and closed 6 up at 79p, while Sebers gained 4 to 109p.

London and Strathclyde highlighted Investment Trusts, rising 6 to 178p or news that Equitable Life Assurance and a subsidiary company had acquired a 20.6 per cent stake and nearly 15 per cent of the total voting rights. TR Industrial and General were quoted at the scrip listing in 109p. Expansion prospects for investments moved down 6 to 190p on profit-taking, but J. T. Farrah picked 7 at 320p.

The oil sector held up surprisingly well in the face of the marked weakness of UK and US markets. An early mark down of the leaders triggered widespread small buying interest and most issues picked up to close showing minor changes on the day, helped by a resolute performance by oil prices. Shell dipped 7 to 822p but BP were 2 harder at 675p. Burmah lost 1 1/2 to 354 1/2p.

A number of the secondary issues attracted good interest. Favourable comment in the weekend Press and talk of a share split by the company at the company's annual meeting initially boosted high-flyer Conroy Petroleum and Natural Resources to 600p before profit-taking left the shares a net 10 lower at 555p. Charles Capel edged up a penny to 63p in the wake of Press comment while news that Mr L. Ka-

Shing the Hong Kong businessman, has taken a 4.9 per cent stake in Cliff Oil ahead of the latter 6 to 54p. The UK-registered Consolidated Gold Fields initially rose to 680p, or buying stimulated by the early strength in the bullion price, but profit-taking and a weak showing by UK equities prompted a late decline which left the share price set 13 down at 650p. Rio Tinto-Zinc drifted back to end the session 5 easier at 685p.

Market trading conditions were against a favourable reception of Paddy Peck's annual results and the shares lost 6 to 192p despite a 12 per cent increase in profits plus a proposed one-for-five scrip issue. South Africa sectors of mining stocks surged ahead for the fifth successive trading session and attained their best levels since October 9, following a substantial increase in activity in the bullion market.

The gold price, which performed strongly in the US on Friday, advanced throughout the morning in London trading and broke through the \$400 at one point before sliding back to close only \$3.75 up on the day. Heavy buying interest in the morning was attributed to the renewed weakness of the dollar while profit-taking was said to have been responsible for the decline in the afternoon. The Gold Mines index put on 17.3 to 381.2.

Gold advanced across a broad front in the early and middle parts of the day before running out of steam after-hours. Nevertheless the majority were left with outstanding gains. Anglo American, heavyweights where Vial Reef, jumped almost £3 to £204.10, Randfontein £2 to £233.40 and Western Deep £1.94 to £28. Freegold raced up 106 to 94p. Goldcorp shot up 30 to 574p and Deacons rose 20 to 825p. New highs for the year were recorded by Bexhix, 10 firmer at 272p and East Daggafornstein, 23 to 112p and 302p.

Platinum and Financials TRADING VOLUME IN MAJOR STOCKS
The following is based on trading volume for Alpha securities dealt through the SEAQ system yesterday until 5 p.m.

Table with columns for Stock, Volume, Closing, Day's Change, etc. Lists various stocks like ASDA-MFI, Allied Lyons, BOC, etc.

FT-ACTUARIES INDICES

Table showing Financial Times Actuaries Indices for Equity Groups & Sub-Sectors, Monday December 1 1986. Includes categories like Building Materials, Electricals, Electronics, etc.

FIXED INTEREST

Table showing Fixed Interest rates and Average Gross Redemption Yields for various maturities and currencies.

LONDON TRADED OPTIONS

Table showing London Traded Options with columns for Calls and Puts, including various stock options and their prices.

RISES AND FALLS YESTERDAY

Table showing Rises and Falls Yesterday for various market indices like British Funds, Corporate Bonds, etc.

LONDON RECENT ISSUES

Table showing London Recent Issues including Equities, Fixed Interest Stocks, and Rights Offers.

RIGHTS OFFERS

Table showing Rights Offers with columns for Name, Amount, Last Date, etc.

Renomination date usually falls on day for sterling value of 100p. Annual dividend, if applicable, based on previous estimates. Dividend rate call or per share based on current dividend rate. Dividend based on full amount of shares outstanding. Dividend rate based on full amount of shares outstanding. Dividend rate based on full amount of shares outstanding.

WORLD STOCK MARKETS

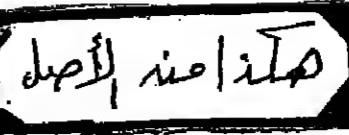


Table of stock market data for Austria, Germany, Norway, Australia (continued), and Japan (continued). Columns include Dec. 1, Price, and % change.

Table of stock market data for Canada, including Toronto and Montreal closing prices for December 1.

Table of stock market data for New York, showing indices and various stock prices.

Table of stock market data for the NASDAQ national market, listing closing prices for various stocks.

Table of stock market data for the NYSE Composite Closing Prices, listing 12-month and 100-day high/low prices.

OVER-THE-COUNTER

Table of over-the-counter stock market data, listing various stocks and their prices.

NYSE Composite Closing Prices

Table of NYSE Composite Closing Prices, listing 12-month and 100-day high/low prices for various stocks.

LONDON

Table of London stock market data, listing chief price changes and various stock prices.

SOME BUSINESS TRAVELLERS

Advertisement for 'SOME BUSINESS TRAVELLERS' featuring the Financial Times logo and text about hotel services.

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Advertisement for 'Get your News early in Stuttgart' featuring a picture of a newspaper and text about subscription services.

NEW YORK STOCK EXCHANGE COMPOSITE CLOSING PRICES

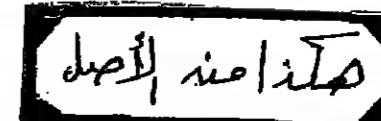
Main table of stock prices with columns for stock symbols, prices, and changes. Includes sub-sections for '12 Month High', '12 Month Low', and '12 Month Change'.

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NYSE COMPOSITE CLOSING PRICES

Table of NYSE Composite Closing Prices, including columns for stock symbols, prices, and volume. Includes sub-sections like 'Continued from Page 38' and 'Continued on Page 37'.

AMEX COMPOSITE CLOSING PRICES

Table of AMEX Composite Closing Prices, including columns for stock symbols, prices, and volume. Includes sub-sections like 'Continued on Page 37' and 'Continued on Page 37'.

OVER-THE-COUNTER Nasdaq national market, closing prices

Table of Over-the-Counter (Nasdaq) national market closing prices, including columns for stock symbols, prices, and volume.

FINANCIAL TIMES SURVEY

The difficulties of diversifying away from oil have still to be faced. In the UK, a continuing campaign to cut energy costs is saving an increasing number of companies large sums of money.

Drive for efficiency

By Maurice Samuelson

FOR MOST of the world, 1986 has been the year of the "third oil shock" with oil prices diving almost as dramatically as they rose in the two big upheavals of the 1970s.

As oil prices fell, the switch to other energy sources was halted or delayed. In some countries, the energy conservation movement ran out of steam. Budgets for investment in energy efficiency were significantly reduced.

In Britain, the opposite has occurred. Far from writing off energy conservation as a tiresome anachronism, the Government has been pressing on bravely under the banner of an "Energy Efficiency Year."

Its campaign assumes that:

- Limitations on supply will eventually resume control of the market place.
- Fuel diversification as well as greater efficiency and self-sufficiency by oil consumers will delay the ascendancy of the main oil producers.
- Lower energy costs are a key factor in boosting Britain's industrial competitiveness.
- The energy management and equipment suppliers are sufficiently entrenched to survive short-term fluctuations in energy prices.
- Government has a role to play mostly by persuasion, but partly by financial intervention.

An authoritative reminder of the limits on world oil consumption appeared in June in British Petroleum's latest annual statistical review. It showed that the world's appetite for energy was still growing despite fluctuating prices and conservation efforts, and that at last year's rate of oil production, existing world reserves are sufficient to last for only another 34 years.

The volatility of the oil market also reflected in

separate figures showing that US oil imports, averaging 5m barrels a day, are back at their highest level since 1981. Commenting on them, Harvard University's energy and environmental policy centre called for a tariff on imports to protect consumers against "future oil shocks."

Diversifying away from oil has so far meant greater use of nuclear power, coal and alternative technologies. But 1986 is also the Year of Chernobyl. The disaster in the Ukrainian nuclear power station is severely jeopardising the acceptability of nuclear power in the Non-Communist world.

In Britain, where the report of the inquiry into the proposed Sizewell B nuclear power station is expected to appear this month, the Government has started using the energy efficiency campaign as a platform for re-establishing the respectability of the atom.

Taking the Chernobyl backlash by the horns, Mr Peter Walker, the Energy Minister, maintains that Europe would quickly face a "gigantic energy crisis" if it eradicated nuclear power stations.

Although he sees potential for greater energy efficiency and for harnessing the power of waves, wind and sun, he concludes that nuclear power is "the cheapest, cleanest and most economical" way to prevent energy shortages.

Even if Sizewell receives the go-ahead, coal will remain ahead of nuclear power as the major source of primary energy in Britain well into the next century.

Despite the cheaper oil price, the electricity industry this year has foregone the temptation to maximise its full oil-burning potential, the extent of which was demonstrated in the 1983-84 coal dispute.

Instead, the availability of cheaper oil and foreign coal has been used to wring important price concessions from an increasingly efficient British coal industry.

Against this background, industry, commerce, local government and the public at large are repeatedly warned not to slacken in their efforts to create more skilful energy management.

The Prime Minister, Mrs Margaret Thatcher, in a rare statement on the subject, said during a visit to an energy exhibition at Milton Keynes in the summer that everybody had been keen to cut the use of fuel when prices were high. Now that they were temporarily down, she said, "we must be just as cost-cutting conscious because we compete with people who are."

But how much progress is Britain really making? Since the Government took office, the national energy bill has risen from £35bn a year to £37bn. But the Government still sticks to its declared aim of reducing it by some £7bn a year, and rising from the bottom to the top of the "energy" saving league.

Mr William Macintyre, director of the Energy Efficiency Office in the Department of Energy, talks of a "groundswell of improvement going on" and points to steadily rising efficiency in wide sectors of industry.

He is particularly pleased with a new code of practice for the energy efficiency of buildings introduced by his office in conjunction with the British Standards Institution.

Britain's jump to the top of the efficiency "league" was to have been completed by the end of the present parliament. But there are no new figures

to indicate whether this has been achieved. As for the £7bn a year savings, according to Mr Walker, they might be realised by the mid-1990s.

The Government's moderate optimism about the limited impact of this year's oil price collapse is shared by some of the people who frequently accuse it of bureaucratic foot-dragging.

Mr Andrew Warren, director of the Association for the Conservation of Energy (ACE), agrees with Mr Macintyre that the UK market for energy management and equipment "has not collapsed despite the drop in the oil price."

The association, founded five years ago, is supported by major companies in a wide

range of industries with an interest in energy efficiency, including insulation, electronic systems and controls, building materials and consultancy services.

It carries out quarterly soundings among its members. The last quarterly report, says Mr Warren, was "quite hopeful."

Contrasting his members' morale with that in the North Sea supplies industry, as well as the conservation equipment suppliers on the Continent, Mr Warren said: "It is amazing that they are not full of doom and gloom."

The oil price collapse had caused no failures among ACE members and most were doing better than forecast at the start

of the year, especially those which rely on general industry and commerce.

But Mr Warren complains that although the officials of the Energy Efficiency office work hard and have a good esprit de corps, they lack the authority to influence the whole of Government. He is also cautious about the significance of some of the energy management award schemes.

His association's five-point manifesto calls for:

- Tighter building regulations to bring the UK closer in line with minimum standards required in most of Europe.
- Widening the loft insulation grants to include wall insulation and other home improvements;

- Obliging public authorities to reinvest at least 10 per cent of their annual fuel expenditure in energy saving;
- A national home energy survey scheme like those in the US and Denmark to show householders how they can cut their bills;
- Applying the same payback criteria to large energy efficient projects to those used for investment in new gasfields or power stations.

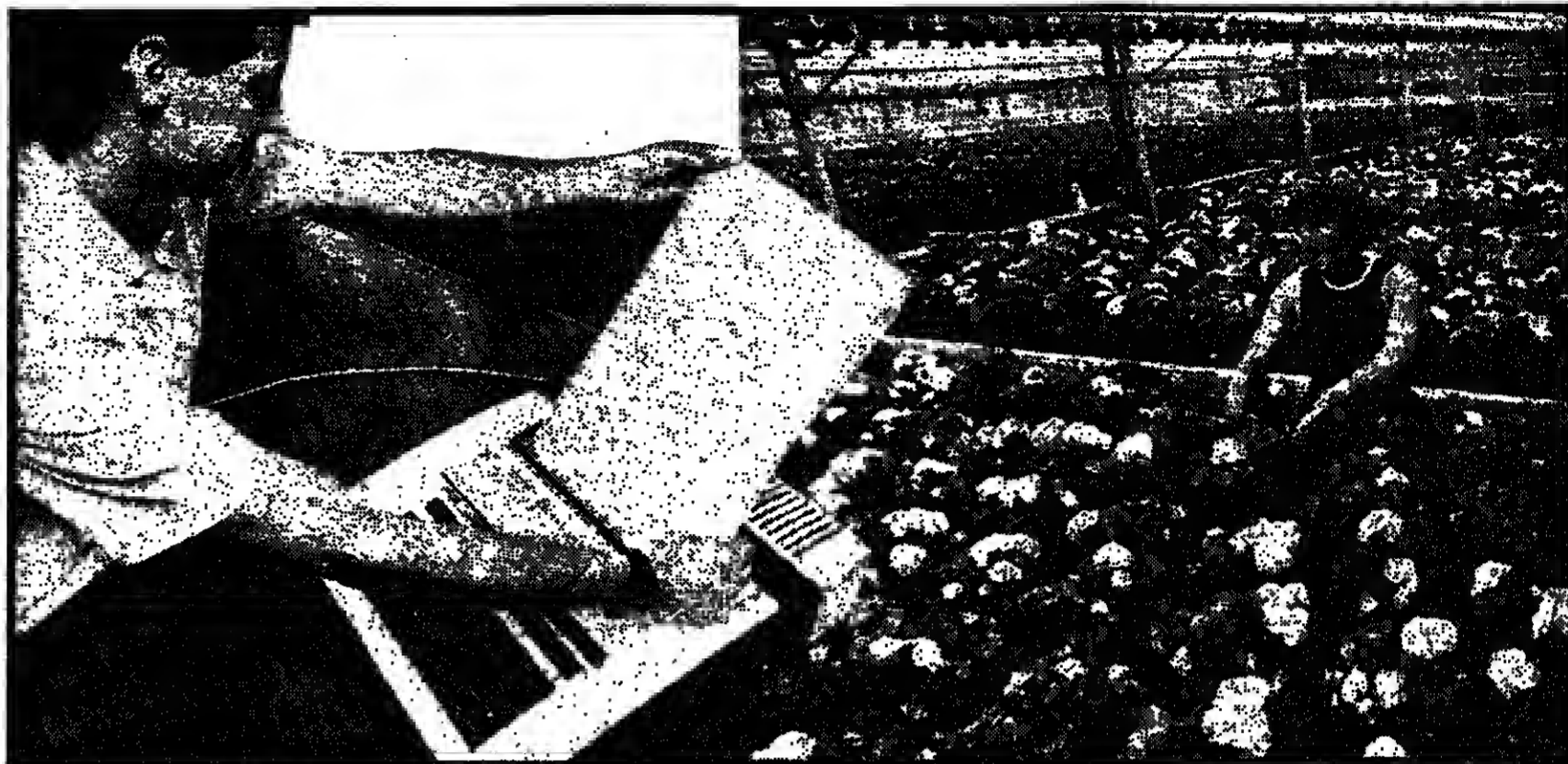
Most of these complaints are shared by the House of Commons Select Committee for Energy, which acts as a tireless watchdog on the Government's pledges and performance.

Earlier this year, in its second energy efficiency report in four

months, it praised the "first class work" of the Energy Efficiency Office and its assurance of that the 1986 campaign would not be "a year of gimmicks."

But it complained that the Government had not accepted many of its earlier complaints, which had been "ignored, rejected or glossed over."

A lot more will be heard of such complaints when the committee's members break up for the forthcoming general election campaign. Labour, for example, says that if elected it will set up much stronger Government machinery — not merely to promote conservation but to implement the necessary investment.



Flowers under glass at Aalsmeer, Netherlands: the printout gives monitoring details of the computer-controlled environment

In Energy Efficiency Year what could be more appropriate than news of major energy savings and greater productivity in British industry? Well, this year 28 UK companies between them have saved nearly £1 million on energy and £2.1 million in all by switching to electricity, with an average payback of less than two years.

As if that weren't reward enough, each one also received a regional PEP (Power for Efficiency and Productivity) Award — the Electricity Supply Industry's way of recognising companies who have made more effective use of energy and reaped major benefits.

Productivity up with 80% energy cost saving

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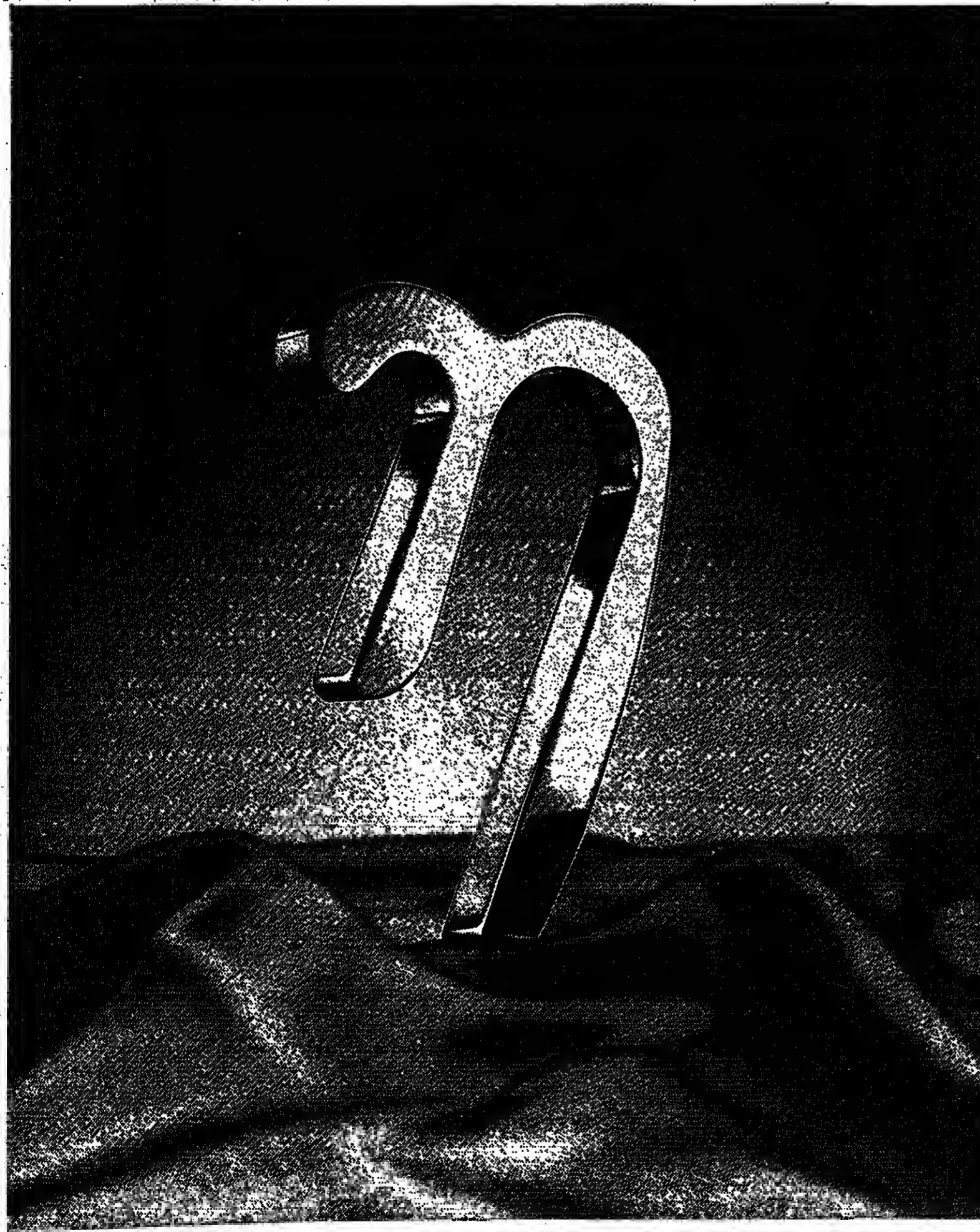
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Managing Energy 2

Energy analysts

Sources of advice

ENERGY shortages come and go but advice on energy management is always plentiful. Some of it comes from companies which were specialising in energy matters long before the 1974 world oil crisis. But most — like that available from central Government — stems from the shortages of the 1970s and is provided by companies of fairly recent origin.

The advice comes in various forms and in varied quality. Apart from the information churned out by the suppliers of energy, there are the practical services offered by contract energy managers, such as Enstar, BP Energy and Associated Heat Services. As explained in a separate article, such companies operate — and sometimes lease and install — central heating plants in exchange for a share of the savings realised.

There are also companies which specialise in marketing energy management knowhow, through the printed or the spoken word. In addition, there is the distinct group of consultants who offer to intervene at the point of sale by handling their customers' energy bills.

One of the most ambitious independent educational programmes in the private sector is that run by Cambridge Information and Research Services (CIRS). Set up in 1978 to supply up-to-date energy information, its growth has accelerated rapidly in recent years with the addition of a publishing arm, using the Energy Publications imprint, and a separate Energy Information Centre.

CIRS says that its services are now used by more than 350 UK industrial, commercial and public sector organisations. According to Mr Andrew Buckley, its director, the CIRS could perform some of the functions of the national Energy Efficiency Office should the Government ever decide to abolish or privatise it.

The CIRS services cover:

- Monthly and quarterly briefings on the industrial energy scene covering fuel prices and their outlook, developments in the supply industries and opportunities for cost cutting.
- A national training programme, organised jointly with the National Energy Management Advisory Committee (NEMAC), to spread knowledge of basic energy management knowhow.

This year, 500 managers have taken part in its courses held in 10 regional centres. Next year, it aims to enrol 2,000 managers for its courses.

● Joint conferences with the Institute of Purchasing and Supply on fuel prices.

● Joint projects with the Energy Efficiency Office, such as a series of technical sales data service booklets highlighting equipment and energy services more than 150,000 booklets have been distributed to date.

CIRS aims to keep managers generally informed about broad developments in the energy arena, rather than just on the latest daily price movements. Its Energy Information Centre, set up seven years ago, "tries to be the AA of energy users," Mr Buckley says.

Nevertheless, its members can obtain real value from its services and advice. Mr Buckley cites one of them who gleefully announced a saving of £500,000 a year on his industrial gas bill.

For specialised price information, however, the energy user can turn to a different category of companies. These include John Hill Associates, a small but well-established London-based operation; Purchasing Index, which services central and local Government, including the health service, and National Utility Services.

One of the newest, and potentially most influential, members of this group is PREMIS, founded two years ago as part of Tza Economists Publications. Of its 100 clients about 40 are local authorities; others are business and industrial groups.

Mr Dhru Tanna, its manager says that PREMIS does not ask customers for a share of savings and relies only on a fixed fee for its income. On the basis of confidential information from its clients, it builds up a picture of the range of prices for various industrial fuels. In exchange, they receive twice monthly reports about the fuel market. From January, it hopes to supply information on a daily basis.

The value of its information reflects the size of the market from which it is obtained. According to Mr Tanna, its data base on gas oil prices represents 13 per cent of UK industrial users. Its gas oil report at the end of October showed users were paying anything from 6.5p per litre to 13.8p.

The oldest and biggest of Britain's tariff analysts is the Croxson-based National Utility Services. Founded in 1933, it has 12 principal offices in every continent, where it gathers comprehensive information on actual prices paid by business users of electricity, gas, oil, coal, water and telecommunications.

With more than 4,500 clients, ranging from banks and insurance companies to brewers, local authorities and universities, National Utility Services, says it receives well over 1m paid bills a year. Most of the savings it wins on electricity bills result from the discovery that clients are not applying for the most beneficial tariff available.

Since so much of its expertise depends on the skills of its analysts, it is not surprising that some of them have set up business on their own.

Two of them, Mr Sandy McKinnon and Mr Roy Clark, did so 11 years ago. Now, with regional offices in Middlesbrough, Stockport, Edinburgh and Bristol, they claim to be cutting the energy bills of public sector and private clients "on a massive scale."

They include more than 60 local authorities, including the City of Liverpool, banks, building societies and industrial sites. Mr Cyril Goldstein, McKinnon and Clark's sales manager, believes that they are still only scratching the surface of their potential market.

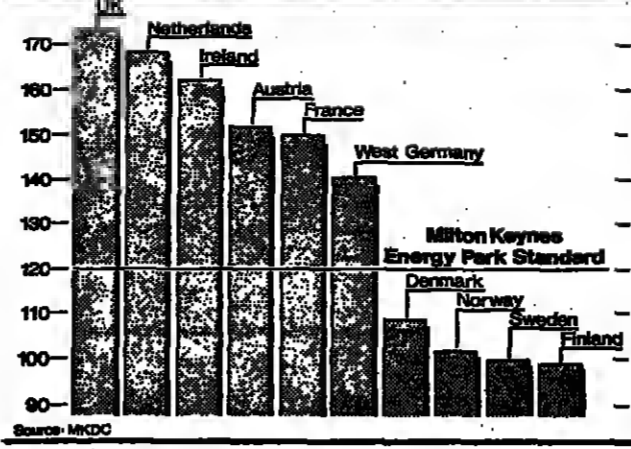
McKinnon and Clark claims that it imposes fewer and less onerous contractual obligations on its customers than some of its competitors. It offers a three-year "participation" agreement which clients can end "at any time." It makes its money purely from savings and, unlike other analysts, does not charge a fee.

Inence, of Lytham St Anne's, which prefers to describe its activity as "energy performance contracting," also dispenses with a set fee, and contents itself with a percentage of savings won through its advice. Founded 11 years ago, its prestige customers include British Home Stores, with nearly 130 High Street premises.

Through careful analysis of tariffs, Inence claims, it is helping BHS to save more than £50,000 a year.

Maurice Samuelson

MILTON KEYNES ENERGY COST INDEX



This four-bedroom house in the Milton Keynes exhibition features a double-height conservatory and a heat exchanger in the kitchen.

Homes

Designs that use the sun

THE JOURNALIST'S favourite informed source, the taxi driver, sniggered on being asked to take me to Energy World—the exhibition of show-piece energy-saving homes put on by Milton Keynes Development Corporation.

"There's not one you could get for much under £50,000 and they go as high as £200,000," he told me. "There's no way I could afford to live there. Even if there weren't any energy bills at all, I still wouldn't be able to buy one as much as I'd like to."

Stephen Fuller, Energy World's director, did his best to explain the discrepancy. "About three-quarters of the houses have already been sold and we even had people queuing for days and nights on end for the shared-ownership, lower-priced houses," Mr Fuller says. "In fact, most of the houses cost no more than 1 or 2 per cent more to build than non-energy efficient similar designs, but since they are all for sale and the demand for them has been so great, the estate agents have valued them at well-above the levels we had anticipated."

Working with the Department of Energy and sponsored by the Anglia Building Society, Milton Keynes Development Corporation asked 32 building developers to submit energy-efficient house designs and the end result is the 45 different designs making up Energy World.

They vary from two-person apartments to large detached

family houses and the energy-saving features included range from simple but effective draught stripping and double glazing to almost hermetically-sealed buildings heated by heat pumps and high efficiency solar collectors.

One of the primary design features used in all the buildings is not in the structure itself but in their orientation. The corporation laid out the building plots and the roads to them to allow the buildings to take maximum advantage of the sun's energy as it travels its East-West arc.

The homes all have large south-facing, and small north-facing, windows and a significant proportion have conservatories on the south side to act as heat traps.

Energy World's most energy-efficient house—as rated by Milton Keynes' own energy-cost index—is a detached, three-bedroom house built by Laing Homes. It is described as an "airtight" structure with built-in passive buoyancy ventilation ensuring a continuous ventilation rate, with humidity removed through a mechanical extractor in the kitchen.

In addition, the house features low-energy lighting and other domestic appliances, and a heat pump using off-peak electricity to supply space heating. Exceptionally high insulation ensures that the house's heat loss is almost negligible, resulting in an annual space and water heating energy bill of only £80.

According to the Department

of Energy's Energy Efficiency Office (EEO), if every householder of Britain's 20m houses was able to cut his/her energy use by 20 per cent, the domestic sector's annual bill for fuel and power would be slashed from £10bn to £8bn. That would release £2bn to be spent on other things, and Britain's manufacturing industry would benefit substantially.

Further, the EEO says that these 20 per cent energy use reductions could be made without major investments. For example, in a new, low-energy housing scheme in Manchester, additional loft, wall and floor insulation with double glazing, draught strips and centrally located boiler and flue with room-by-room temperature controls added just £300 to each house, and the added cost was repaid in reduced energy bills in two and a half years.

But out of the 20m houses in Britain, one in 13 still has no hot water tank insulation, 3m have insufficient loft insulation, 12m have no draught stripping and only 2m of the 15m houses with cavity walls have cavity wall insulation.

Adding to the problem have been the amelioration building regulations which, in the past, failed to demand even the most rudimentary of energy efficiency measures in building design and construction, and, in the view of many associated with the domestic energy sector, still fall far short of what is needed.

Milton Keynes Corporation considers that the regu-

lations are neither strict enough nor sufficiently all-embracing and has chosen to develop its own Energy Cost Index (ECI) to provide the energy-conscious housebuyer with a better guide to a house's energy use.

All the relevant data relating to the house's structure, the insulation measures incorporated as standard and the energy used in operating all lighting, heating and appliances, is fed into a computer and a figure produced which becomes the house's ECI regardless of shifts in fuel costs.

The Milton Keynes team which developed the concept calculates that the average index for Britain's housing stock is 170 and that a reasonable figure to aim at is 120—an average of the indices for all north European countries.

All the houses in Energy World are rated at 120 or better, sometimes by as much as 80 points on the ECI scale (the lower the figure the more energy-efficient the house).

The ECI has attracted much attention and the Department of the Environment (DoE) is currently considering whether it should be used as the central plank of the energy efficiency part of the revamped building regulations.

The Timber and Brick Homes Consortium (TBHC)—representing nearly 100 building companies with a strong leaning towards timber frame construction—strongly disagrees with the index since it incor-

porates non-permanent energy-using features and takes no account of changing fuel prices.

Instead, the consortium believes that the building regulations should incorporate the TBHC's own Public Energy Index (PEI) which relates only to the permanent structure of the building and makes allowance for fuel cost alterations.

A study* carried out for the Department of Energy by a research team from the London Business School and from Addison Research Associates, showed that, in many respects, the building industry is well out of step with consumers' attitudes, especially in relation to the incorporation of passive solar gain considerations in a design.

But it is not only the building industry that needs to take the consumer into account. Studies have also shown that both central and local government, while gearing up appeals to reduce energy consumption by improving its energy use, do little to provide incentives to stimulate the inclusion of energy-saving features.

Local authorities have been providing loft insulation grants for some years but there is no similar scheme to help with cavity wall insulation, draught strip or double glazing.

*Energy Efficient House Design: Customers' Choice and Industry Response Survey carried out by Professor Robin Wensley of the London Business School and Caroline Lorge, Addison Research Associates.

Mark Newham

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Managing Energy 3

New buildings

Fashion has its say

THE SINGLE most significant factor which will soon affect energy use in major commercial and public buildings is likely to have little to do with energy efficiency for its own sake, but much more with architectural trends and fashions.

This is because most architects (and other arbiters such as planners) are moving away from glass-and-metal "curtain wall" constructions which allow highest losses by the very nature of the materials involved, and back to more traditional stone and brickwork which, with much smaller windows, have built-in energy-saving properties.

The glass building is to a large extent a leftover from the 1960s, when fuel was so cheap that nobody worried about the heat losses and large fuel bills. On the contrary, the most serious problem was perceived to be solar gain, the heat of the sun coming into the building.

The classic example of the absurdities and wastefulness of some 1980s designs is the Greater London Council's Island Block at Waterloo. This building has automatic controls which ensure that as soon as the sun comes out, dark opaque blinds come down to shade the windows—leaving the interior so dark that electric lights then come on inside.

Unfortunately, as is often the case with major public buildings, they are in the planning and construction pipeline far so long that some emerge already out of date. A good example is the Queen Elizabeth II conference centre in Westminster, which had an eight-year gestation period and is now going through serious teething problems.

Not untypically, of the building's total cost of about £54m, £20m was spent on services, much of it on heating, ventilation and other energy-related items. The four plant rooms with their circulation space take up 15 per cent of the building's total floor area and contain three 1850kw Allen Ygnis boilers, cautiously designed to burn either gas or oil.

For the cooling system, three Carrier "hermetic" centrifugal chillers generate chilled water. The building also has cooling towers on the roof. These apparent contradictions—the need for heating and cooling at the same time—exist in spite of the building having its own heat-recovery system as well, based on the thermal wheel method.

One of the reasons is the building's many different uses, including TV studios, with varying air environment requirements. It was not designed to be a model of energy efficiency and should perhaps not therefore be blamed for not being one.

A more common type of facility of the modern leisure centre complex, and one of the most advanced recently opened in Newport, it was built in just over two years at a cost of £7.5m and contains a main sports and entertainment hall and a large leisure pool. The multi-use main hall requires a great deal of automation to allow maximum flexibility: seating is electrically retractable, lighting levels will vary according to usage: 500 lux normally, but 1,000 lux for special events. A minimum temperature of 16 deg C is maintained in winter, with provision for air changes and account taken of the effects on the internal atmosphere of activities such as badminton.



Inside the new Queen Elizabeth II conference centre. The many uses to which this prestige £54m building is put, with the different requirements involved, have resulted in some apparent contradictions in the design of its heating and cooling systems.

BRITISH INDUSTRY'S energy efficiency drive has been set back, but not scuppered, by this year's fall in energy prices.

In the words of a senior Government official: "When the oil price collapsed people began by holding their breath. But they have since come back to take the necessary steps."

Supplies of new energy equipment have urged customers to regard the price cuts as a temporary windfall with which to improve their combustion plant and their production costs once prices recover.

They are having mixed results, judging by the state of the main areas of efficiency investment. Orders for heat recovery equipment have been hit hardest. Insulation sales, which have so far held up well, may also soon start feeling the pinch, they say.

On the consultancy front, negotiations between most clients and contract energy managers simply stopped, especially when they would have involved switching from fuel oil to gas or coal.

But demand is still buoyant for new electronic controls. And orders for new boilers and burners, which follow their own leisurely pace, are affected less by the collapse of the oil price than when they reach the end of their lives.

The broader picture, based on decisions and trends predating the oil price fall, also suggests that industry's efficiency drive still has considerable momentum and that, like an oil supertanker, it would travel a long way before being brought to a halt.

Of the £7bn a year which the

Savings in industry

Momentum for change

Government says can be saved in the UK by improved use of energy, some £2bn would be achieved by industry and commerce.

Mr William MacIntyre, director of the Energy Efficiency Office, reckons that to date "our efforts over the past three years are showing savings of £500m a year in industry and commerce."

The Government strategy has been based on a programme of surveys to identify areas of high potential savings, their adoption of targets coupled with regular monitoring of performance, subsidised pilot schemes, and the appointment of trained energy managers.

By the end of this year, surveys will have been carried out in some 15 sectors out of an initial list of 20. They include iron and steel, chemicals, paper and board, cement, plastics, foundries, aluminium, food processing, non-ferrous metals, glass, textiles, saw milling, local authorities and retail stores. So far seven sectors have embarked on industry-wide monitoring and targeting projects.

As a result of these surveys—now being carried out at the rate of 3,500 a year—savings worth £200m a year have been identified, suggesting a 40 to 1 ratio between the savings and

the costs of the survey and the subsequent monitoring and targeting programmes.

The Government puts up half the cost of the initial survey—up to £500 for brief surveys and £10,000 for extended surveys. The application rate for the longer surveys has been twice as high this year as last—in spite of the oil price change.

The work on a particular sector of industry starts with pilot studies of three or four of its leading members. On the basis of its findings, a report is compiled showing the scope for savings and how they can be achieved. So far, monitoring and targeting programmes are being run in seven sectors.

The penetration rate of these standards depends on the interest shown by individual manufacturers. For instance, the system worked out for the paper and board mills has now been adopted by more than half the industry's sites in the country.

The result is a steady improvement in efficiency. The British Paper and Board Industry Federation says its members last year consumed 1.5 per cent less energy than in 1984 while raising output by 2.5 per cent. The improvement, it says, was due largely to the industry's commitment to the energy management monitoring and

targeting programme.

Worthwhile savings are possible for other industries which adopt similar strategies. The food and drink industry has been told it could cut fuel and power consumption by an average of 30 per cent, worth more than £150m a year.

This industry, which consists of nearly 7,000 sites with 25 or more employees, uses about 6m tonnes of coal equivalent a year, or 11 per cent of energy used by manufacturing industry as a whole. With 80 per cent of its energy used for raising steam or hot water, a lot of the savings would be made by better boiler operation and steam distribution.

The soft drinks industry last month began a two-year monitoring and targeting campaign, with £90,000 worth of help from the Energy Efficiency Office. It was preceded by a development phase covering six companies which had cut their energy bills by 8 per cent a year.

Authorising the grant, Mr David Hunt, Energy Minister, said: "If this could be extended across the industry, it would really put a fix into company profits."

A similar global amount of energy is used by the glass, pottery, bricks and cement in-

dustries—some 11.5 per cent of industrial consumption (excluding iron and steel).

They are all energy-intensive, with fuel and power costs accounting for up to 40 per cent of total operating costs. At mid-1988 prices, a 10 per cent cut in energy use would have saved them more than £50m a year.

In the glass container industry, a two-year pilot programme covering five plants achieved substantial savings in several parts of the production process.

The meal manufacturing and processing industries account for about a quarter of the energy used by British industry. In 1984, they used the equivalent of 14.4m tonnes of coal, costing about £1.5bn. About 11.7m tonnes of coal equivalent (mtce) was used in the ferrous sector, while aluminium accounted for 78 per cent of the non-ferrous sector's 2.8mtce.

Both sectors are electricity-intensive, the non-ferrous sector meeting about a fifth of its electricity requirements through its own hydro-electric plants.

The potential for savings in production costs across all the metal sector is, therefore, substantial. On the basis of monitoring and targeting projects with the Government's help, the industry says that energy savings of well over 10 per cent are feasible.

In some cases, savings of up to 50 per cent can be realised by investment in appropriate technologies developed by the gas and electricity industries.

Maurice Samuelson

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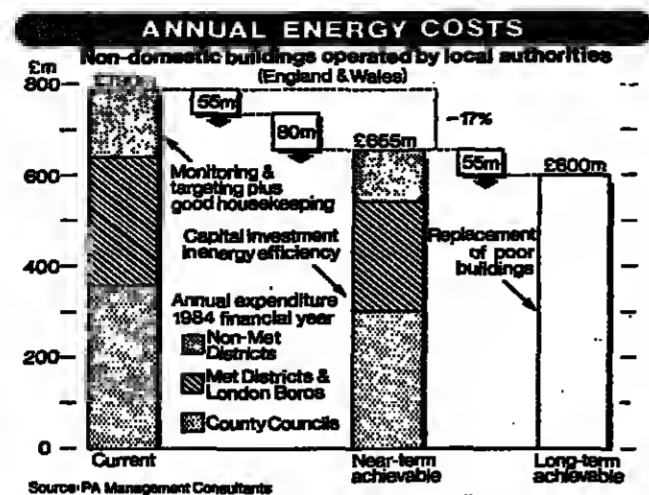
IT BRITAIN really is to attain the goal of reducing its annual energy bill by £7bn through the more effective use of energy as is said to be possible by the Department of Energy, more will be required than simply installing more energy-efficient plant.

Reliable advice on which of the many improved systems is best for particular applications is also needed, backed up by guidance on how best to operate both new and existing power-generating and using technologies.

This requirement has spawned a totally new industry — the energy consultants. Before the great energy shocks of 1973 and 1979, such an industry was deemed unnecessary. Energy was simply another useable commodity.

It was not until 1983 that a professional association, the Energy Systems Trade Association (ESTA), based in Stroud, emerged to oversee the infant energy efficiency industry and a further four years was to pass before the association announced the formation of its Independent Energy Consultants Group (IECG).

ESTA's rapid growth rate is an indicator of the growth of the energy efficiency industry in the UK. From the eight original



members of the body in 1983, ESTA now has about 90 members representing all aspects of the industry from small consultancies to large companies engaged in improved energy technology development and installation.

Of these, about 30 describe themselves as energy consultancies—more than three times the number of consultancies on the ESTA membership list at the beginning of 1983. Half of

grow tenfold. Of today's market, members of the IECG claim 60 per cent with the lion's share going to the most prominent members.

One of these consultancies is NIFES — National Industrial Fuel Efficiency Service — of Altrincham in Cheshire. Set up originally in 1964 as a service offered to industry by the old Ministry of Fuel and Power, the company was bought by its staff in 1971 and has developed to the point at which NIFES describes itself as Europe's leading energy management and engineering consultancy.

Through its offices in nine locations throughout the UK, the company claims to have successfully completed more than 15,000 commissions in virtually all sectors of industry and commerce covering everything from energy monitoring and target setting to project engineering design and management.

A smaller, but no less versatile, IECG member is PA Management Consultants of London. PA's energy efficiency division was set up in the early 1970s and now commands about £2m in consultancy fees each year.

In one of its projects, PA carried out energy surveys at all of the Midland Bank's 1,100 UK branches and, through simple

but effective measures, the bank's overall annual energy bill has been reduced by an average of 22 per cent.

At each branch, PA staff investigated the effectiveness of the heating and lighting equipment and controls, computerised the data and produced suggestions—costing no more than £700 for each branch—for how each branch could cut its energy use. The total project cost about £1.3m—half spent on improved energy supply equipment—which will be recouped by the bank in no more than two years in reduced energy costs.

Similar work has been carried out for Trust House Forte's hotels, for British Airways and at 35 paper mills throughout the UK. In each case the savings have proved the value of the advice offered by the consultancy, PA says.

In the public sector, PA has been less active despite its enthusiasm to help both central and local authorities reduce their vast energy bills—as enthusiasm which won the company a contract from the Audit Commission and the Department of Energy's Energy Efficiency Office to carry out a detailed survey of the energy savings potential of local government buildings.

The study, conducted on a representative 30 of the 450 local authorities in the UK and published in 1985, showed that savings valued at £135m a year are possible in local government buildings without adversely affecting the comfort of building users or the standards of service offered to the public.

These savings, says the report, "can be achieved if all authorities adopt a more organised approach to the implementation of energy efficiency measures, a more effective, systematic approach to managing energy and improve their management information systems."

But despite the undoubted benefits of implementing energy savings methods at local authority level, only a few of the authorities have yet to board the energy efficiency bandwagon. The few include the six-tiered county councils of Kent and Surrey which are now seeing their investments in energy efficiency pay off, but the majority have yet to put the theory into practice for lack of sufficient investment capital for this purpose.

It has been estimated that to reach an energy saving of £1.2bn a year in the public sector, an investment of about £50m will be required. Many local authorities are keen to start investing large sums to accrue the huge potential savings, but are being blocked by Treasury dictates which prevent such investments being made.

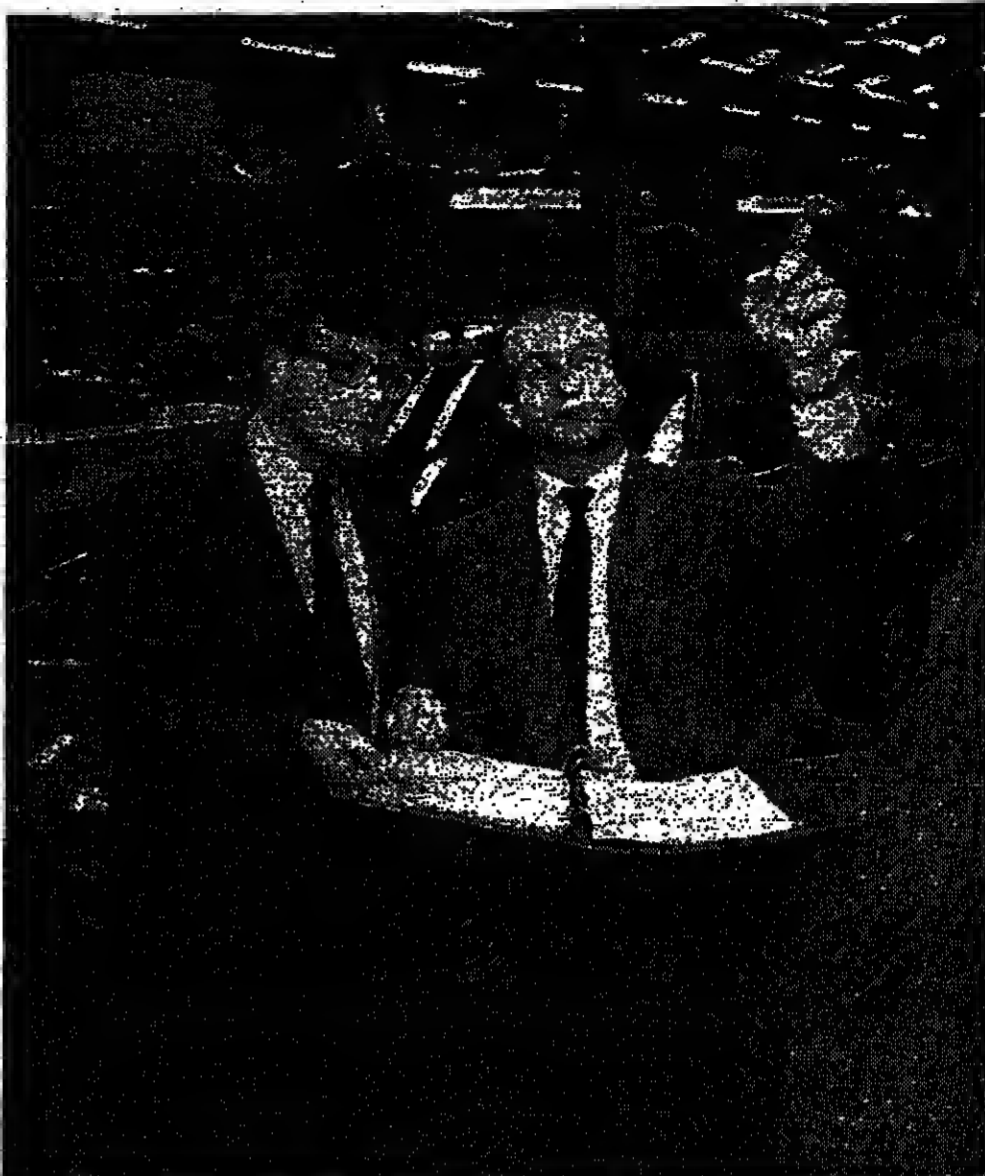
The Treasury is anxious to avoid adding to the Public Sector Borrowing Requirement and appears to be blind to the obvious longer-term savings from the necessary short-term investments needed, and the local authorities have suffered as a result.

This is even the case when a third party offers to shoulder all the initial capital cost of energy efficiency improvement projects with the aim of recouping the investment and profit in the process out of the energy savings accruing from the investment.

Such third party financing is now offered by some companies in the UK which have formed a new breed of energy efficiency consultancies. These are the Contract Energy Managers (CEMs). In effect, CEMs offer any organisation wishing to reduce energy use the up-front capital for plant improvement, advice on the type of improved plant to install, a monitoring service to ensure the system functioning as it should and a full-scale back-up service.

The beauty of the service is that it costs the interested party nothing. The CEM gets its money back from the energy savings it is able to achieve.

Naturally, only extremely well-capitalised organisations are able to become involved in CEM work since the required investments are usually large and the payback period can be up to 10 years. Hence



Mr Ritchie Spencer (left) managing director of Reliant Motors, discusses the company's programme with Mr Trevor Thorpe, project engineer at Emstar



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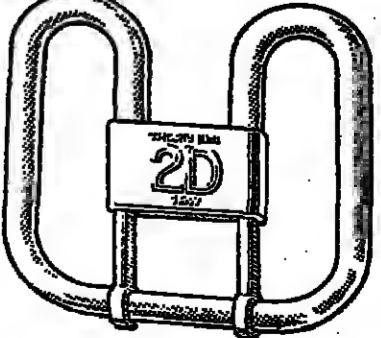
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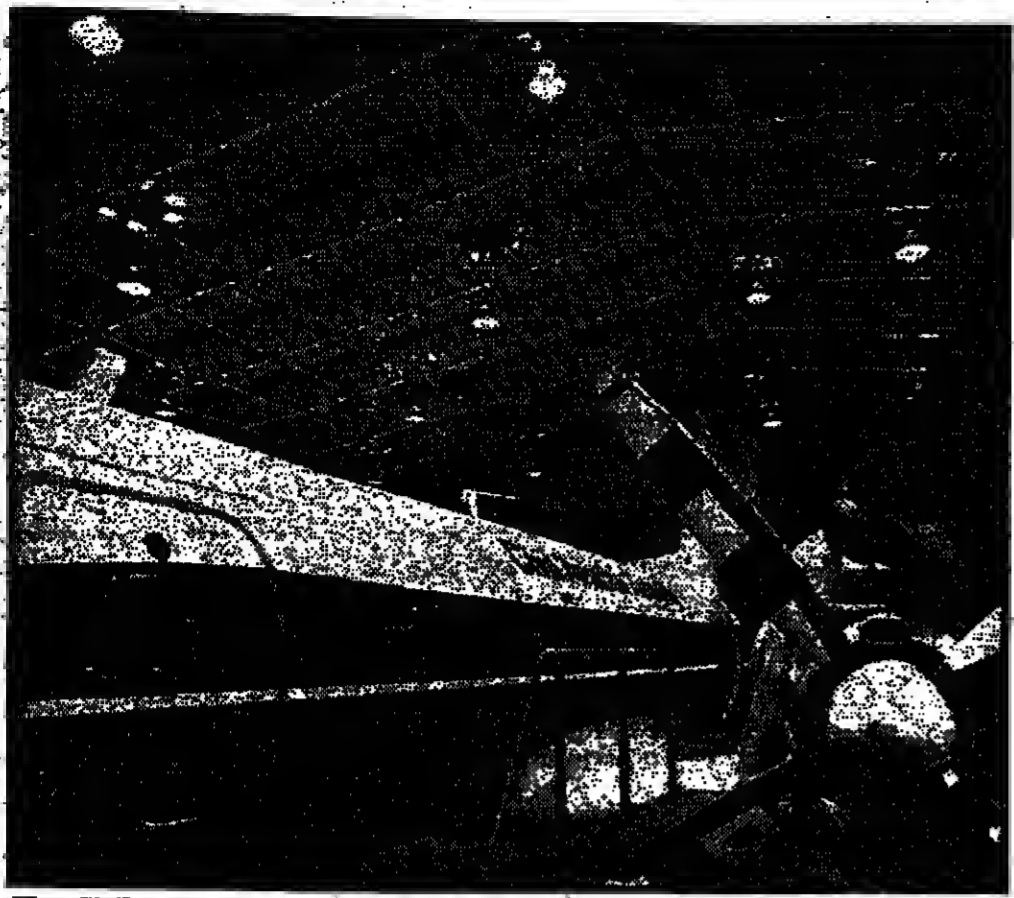


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The Department of
Energy has announced
that it will be introducing
a new system of energy
certificates for the public
sector. The system will
be based on the same
principles as the new
energy certificates for the
private sector which were
introduced in 1985. The
new system will be
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will be a major step
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of a national energy
market.



The Civil Aviation Authority at Stansted Airport has replaced tungsten and mercury luminaires with energy-saving high-pressure sodium lamps

Lighting

Big cost cuts available

THE COST of electricity for lighting to consumers amounts to more than £1.8bn a year. The Lighting Industry Federation believes that the UK could reduce its bill by one-third without reducing lighting standards but by introducing well-proven cost-effective measures.

About 70 per cent of the nation's lighting bill is accounted for by industry, commerce and the public sector. In some companies where investment in energy-saving techniques have been used, payback periods have been as short as nine months with savings in the total bill of 75 per cent.

The Lighting Industry Federation believes that managers in industry and commerce have displayed a lack of awareness about lighting systems. The federation says that many lighting installations are inefficient and do not make use of modern advances in technology.

Coupled with this many organisations do not maintain lighting systems effectively. According to Thorn EMI Lighting, the poor standards of maintenance adopted by many organisations often result in a 60 to 70 per cent reduction in efficiency.

In 1985 the Department of Energy, Confederation of British Industry, the Electricity Council and other leading electrical trade bodies sponsored an award for energy management in lighting. The Emmas awards, as they are known, highlight companies where energy-efficient practices have been adopted. For example, winners last year included Dudley Metropolitan Borough Council and the Scottish Exhibition and Conference Centre.

It is now more than 100 years since the first electric light bulb was produced. Now, in industry and commerce, fluorescent forms of lighting tend to dominate as a light source and lamp technology has taken some significant strides forward. Fluorescent technology has been developed to suit more closely external environments.

Philips' SL lamp which can fit into conventional light sockets has been aimed at the domestic, industrial and commercial markets. This lamp uses only a quarter of the electricity consumed by conventional lightbulbs and last five times longer. Even taking into account the initial high price of such lamps, total lighting costs can be halved through their use.

Thorn EMI Lighting and other manufacturers such as GEC Osram have their own version of this type of lamp. Thorn EMI launched its 2D compact fluorescent lamps in 1981 as a replacement for tungsten lamps of 100W or less. Edinburgh University, for example, replaced 740 tungsten lamps with the 16W 2D compact units and saved £17,000 in the first year.

Another technical development has been high frequency fluorescent lighting. This, says the industry, represents the state of the art. High-frequency systems combine improved lighting with energy savings of more than 30 per cent. They totally eliminated mains flicker which bedevils older systems and is often distracting and distressing for those working in offices and industrial complexes.

Coupled with this, the light is activated instantly instead of after the delay found in older tubes, and the industry has developed smaller diameter fluorescent tubes which consume nearly 9 per cent less energy. Another improvement has been the development of better electronic controls to start the lamp.

High-pressure sodium lamps have gained widespread acceptance in factories, in exteriors and for floodlighting. Son Lamps from Thorn EMI Lighting, for example, are eight times more efficient than a household bulb.

In terms of cost comparison a 300W halogen lamp would cost about £66 to operate over a 4,000-hour period compared with only £17.60 for a high-pressure sodium unit.

In recent years control systems have been introduced as part of energy management systems.

Just as electronic products such as domestic or industrial heating systems, they can be used to determine where and when lights should be switched on.

The simple energy-saving method is to encourage people to switch off unwanted lights but this really depends on the individual and the company's determination to train its staff. So, remotely-controlled devices such as infra-red, photocells and ultrasonic sensors are becoming popular. A photocell can be used to detect light levels and switch off lights when the illumination exceeds a set value.

Lighting can account for a significant percentage of a company's total energy bill but the proportion can be cut by switching higher depending on the age and type of lighting system installed.

There are many examples of large savings made by companies which have invested in modern forms of lighting. For example, Philips Lighting installed its integrated function systems at the Shell Centre in London, and in one department alone energy consumption was cut by more than 75 per cent.

The Shell Centre installation is fully computerised and gives occupants three levels of lighting: natural daylight, manually controlled lighting and automatically controlled lighting that varies according to outside lighting conditions and is switched off outside normal working hours.

Many lighting companies now offer management services to help customers install more efficient lighting. Philips Lighting, for example, has introduced a service which encompasses supply, installation, maintenance and management of a complete lighting system.

The customer simply agrees how much light is required and then pays a quarterly charge once the installation is complete. The client does not have to make any large capital investment.

Elaine Williams

A GREAT DEAL of time and energy is currently being spent debating the relative merits of not only various methods of insulation but also which elements of different types of buildings can be insulated to best advantage. This debate is bound to gather momentum very soon, when the Government publishes its draft new Building Regulations governing thermal matters and consults the industry on the details.

The elements which have generally received most attention are roofs and walls, with floors now coming into the equation but so far more in theory than in practice. Double glazing has long been popular for its fringe benefits but other than in new housing it is still regarded as something of a luxury because of the high installation cost, and it has a very long payback period.

The loft and wall insulation market has the most commercial potential and the most competing manufacturers and installers. In the normally very fragmented building industry they have, remarkably, been able to form themselves into prominent pressure groups which have been in operation for some time.

Eurisol, the UK mineral wool association, was formed in 1962 as the UK arm of its European counterpart EURIMA. It has since been trying to promote the cause of glass and mineral wools not only for thermal insulation but also in terms of fire protection, water penetration prevention and noise insulation.

Its members are the dominant manufacturers in the market: Pilkington, Rockwool and Gyproc.

The same three companies are also members of the National Cavity Insulation Association which concentrates, as its name indicates, on tackling its estimated 9m UK homes with uninsulated cavity walls of which 5m also suffer from severe condensation dampness.

Unlike Eurisol, which also has an eye on the industrial and commercial sectors, the NCIA was set up to respond to the major drive to insulate domestic cavity walls following the oil crisis of the mid-1970s.

Also unlike Eurisol, the NCIA's main membership is made up of installers. In fact the association was set up to curb the activities of insulation "cowboys" who were giving the entire industry a very bad reputation in the early boom years.

It tries to maintain standards by requiring members to be registered with British Standards in the case of urea formaldehyde foam installers (which currently have 18 per cent of the total market) and to hold an installer's certificate if they are filling cavities with either mineral/glass wools (46 per cent of the market) or polystyrene beads (18 per cent).

The cowboy installers were largely to blame for the user-collapse of the cavity foam market some ten years ago, but irresponsible press and media campaigns were an important element too. The material does give off irritating fumes as the formaldehyde gas evaporates (so incidentally, does common chipboard which also contains it), which can cause soreness to eyes and throats.

This is why it has always been banned from use in any other than masonry cavities, where the foam would normally be vented to the outside. A number of substandard installations in homes and schools, coupled with untrue press scares, took their toll and cavity foam never fully recovered.

One of the industry's own major faults has long been that in the scramble to sell more materials and installations, it has been reluctant to advise householders to have the job properly (and somewhat expensively) supervised.

According to building surveyor Richard Catt, trouble can arise if the cavity walls are not perfectly sound or at least 40mm wide, if either leaf is of random rubble stonework, or if chimneys are built against the walls and fuses can therefore be blocked with foam. In addition, there are geographical limitations of very exposed areas where cavity filling is not recommended or even not permitted.

Richard Catt and fellow surveyors have also taken on the challenge of trying to improve the very low insulation levels of the UK's 8m houses with solid brick walls.

These houses can be laboriously insulated internally, by laying insulation materials (almost invariably mineral wool sheathing) between battens under a vapour check and covered with plasterboard, or by fixing insulation board and plasterboard "sandwiches" directly to the wall with plaster dabs.

The main drawback is that during this process the dwelling will be uninhabitable, so it is only an option in cases where wholesale refurbishment is taking place.

More promising is external insulation, which combined improved thermal performance with fringe benefits such as keeping out the driving rain

which can penetrate single brick walls, especially ones that are old and porous with elderly pointing on exposed elevations.

The External Wall Insulation Association has six members offering systems based on four basic principles:

- Mineral fibre slabs fixed to the outside walls and covered with metal lathing and render;
- Layers of solid insulation bonded or fixed to the walls and reinforced with metal, then protected with thick rendering;
- A layer of polystyrene or similar polymer is bonded to the wall, reinforced with fibrous mesh and protected with a polymer scratch coat and finishing coat or render;
- A lightweight insulating render is trowelled on to the wall and finished—suitable for very uneven surfaces.

The member companies, including Coolag, Foamglas, Disbotherm and Permoglas, offer these options singly or in combinations. A Code of Practice is now being prepared for external wall insulation which it is hoped will form the basis of a new British Standard.

According to Mr Andrew Warren, director of the Association for the Conservation of Energy, the insulation of floors has become one of the Cinderella areas of insulation, not covered by any existing regulations and therefore responsible for almost a quarter of all energy loss in homes. The association has been campaigning for better floor insulation for more than 18 months.

Possibly in anticipation of the growing interest in floors, Dow Construction Products has introduced Floormate extruded polystyrene foam insulation boards, suitable for most floors, both concrete and timber, for which they suggest a payback period of less than four years.

Mira Bar-Hillel

Insulation

Industry debate on the various methods

Government proposals on the way

DRAFT government proposals on revising Part L of the Building Regulations are now ready to go out for consultation. They will be lengthy and comprehensive and will afford plenty of scope for all interested parties to have their say.

The essence of the new draft is that the thermal regulations need to be brought into line with other Building Regulations, which in the past few years have been totally recast on the basis of replacing stringent and relatively inflexible rules and guidelines by basic "functional requirements."

These are backed by non-statutory Approved Documents containing examples of how the requirements may be satisfied. But designers and builders may also devise their own solutions provided they can convince local authority building control officers that their solutions are within the requirement.

The advantage is that because they are not statutory, Approved Documents may be updated and amended without recourse to Parliamentary approval.

The functional requirement for thermal performance may also be changed in another way. Instead of laying down specific requirements in terms of U-Values (thermal resistance) for walls, roofs, floors, windows and so on in isolation, there is a move towards giving a single overall value. This could be perhaps 20 per cent higher than now, but allowing for greater flexibility to individual designers and builders as to how to achieve these overall figures.

Another proposal which will cause much debate is to bring external buildings into line with houses for thermal insulation purposes.

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Enlightened self-interest, you may say. Yet we're also active outside our own walls.

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Department of Energy, Neighbourhood Energy Action, which provides insulation for the poor and the elderly.

We are also sponsoring a nationwide programme of Energy Efficiency Education seminars, organised by the Cranfield Institute of Technology, to help teachers and administrators use energy better.

And we continue to promote new thinking on energy matters by sponsoring the Royal Society Esso Energy Award.

The Meteorological Office won it this year for a global weather forecasting system that enables aircraft to make best use of prevailing winds—and hence fuel economies.

Although forecasting next year's winner is impossible, one thing is certain. On the energy efficiency front, Esso will continue to make further strides.



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THORN EM

Managing Energy 6

Electronic systems

Microchip brings optimum control

A TRANSFORMATION has taken place in the buildings of Britain in recent years under the influence of two coincidental developments.

One was economic—the energy crisis; the other was technological—the increasing power and plummeting cost of the microchip. New attitudes towards conservation engendered by one, allied to fresh technological opportunities offered by the other, are changing out of all recognition the way building services and energy are managed.

In the old days BC—before the chip—control of heating and ventilation in factories and offices consisted in not much more than stoking up the fire and opening the window, while energy conservation as a working practice was in embryo, awaiting the end of the age of cheap oil and squandered mania attitudes.

Now it has come into its own. Electronic energy management systems (EMS) took off from the realisation that 20 per cent of the primary energy consumed in the UK was used in non-domestic buildings for space and hot water heating, lighting, air conditioning and power.

By raising the efficiency of energy used through improved monitoring and control techniques, consumption could be reduced by as much as 30 per cent. Energy management systems could be used for auto-

matic control of lighting, heating, electrical load, air conditioning and boilers, offering energy saving over conventional good practice in four main ways:

- By automatically switching plant on and off according to actual requirements;
- By optimising the use of plant such as heating, boilers and chillers to maintain peak efficiency;
- By improving operation and maintenance through detecting faults;
- By giving management a powerful tool for energy auditing.

In 1980 a new type of energy management business grew up almost overnight with small, entrepreneurial companies such as Trend, JEL and Potterton setting the opportunity offered by the ever-cheaper microprocessor. By 1985, as a report by Proplan showed, EMS had not only developed as a new business but "was now a central core for many other management information systems in buildings."

The report also showed that EMS was changing the structure of the heating, ventilation and air-conditioning controls market because the chip was equally available to all and size of operation was not critical to trading successfully in the market. The small innovative Building Energy Management System (BEMS) companies

faced problems of financing rapid growth, major product development programmes and a high level of promotion in relation to turnover.

Some have gone under but the survivors are reaping rich rewards and are poised to move into overseas markets and gain a share of a European market, expected to grow by 70 per cent by 1990 to \$280m.

Such is their growth that what began as simply energy management systems is "migrating" into the area of total building services control, threatening the traditional markets of the large established control companies such as Johnson Controls, Honeywell, and Satchwell, which have lost a share in the retrofit market.

The big companies nevertheless still have a strong hold on the new building sector where consultants still tend to speak the language of electro-mechanical controls for heating, ventilating and air conditioning (HVAC) to traditional suppliers, but the language of electronic controls is becoming increasingly difficult to ignore.

The development of Trend as a company exemplifies the pace of change. Initially most of their revenue came from selling to owners of existing buildings who wanted to reduce energy costs. Since then the balance has shifted and most of the company's output is now destined for new buildings to take the

place of conventional controls. Trend has just merged with the MK Electric Group who will finance further expansion at home and abroad.

The small EMS companies are cashing in on the basic fact that controllers which cost £10,000 in 1981 cost £1,000 in 1985. With such dramatic reductions in cost virtually any non-domestic building is now a suitable case for electronic energy management treatment.

One of the main advantages of energy management systems is that they can control more than one building. For example, a pilot group of 50 branches of Barclays Bank in South East England is testing the feasibility of distributed intelligence techniques, using microprocessor-based intelligent outstations, supplied by JEL Energy Conservation Services, installed in each branch to monitor and control building services.

Each outstation is connected, via the telephone network, to a central supervisory station in the bank's headquarters. The system is expected to pay for itself through energy savings.

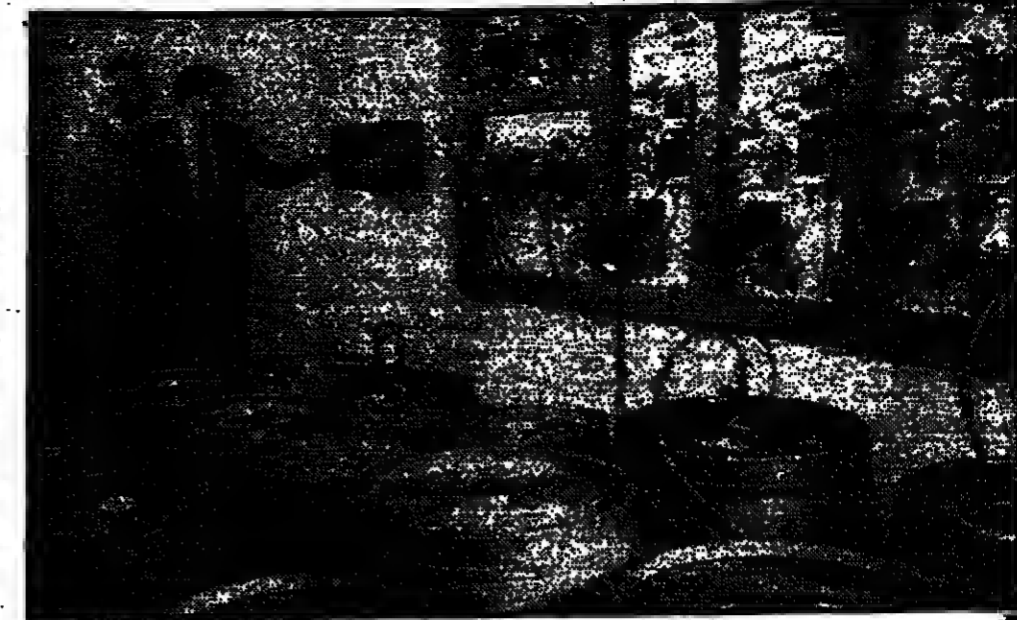
The Singleton Hospital in Swansea, built 30 years ago before the era of high fuel costs, suffered from inadequate heating controls. Dryden installed an energy management system to control heating in 24 zones and maintain constant temperature in the day and cut

out unnecessary parts of the heating, reducing energy consumption by 10 per cent. The system has now been extended to link the outpatients department, the operating theatre and a satellite hospital a mile and a half away.

The new Lloyd's Building shows how the newer companies and the big established ones are increasingly treading the same marketplace. The Johnson Controls building management system which oversees the building services, is linked to a lighting control and energy management switching system provided by Energy Conservation Systems, with flexible programmable architecture and glass fibre optic links.

Potterton Energy Controls, another of the small companies in the field which began making low-cost energy controllers, has just completed a contract in the new Debenhams store in Preston which not only monitors external and internal temperatures, electricity and gas consumption, and raised alarms but controls more than 4,500 lights in the 78,000 sq ft store.

Such is the pace of technological change that even the very latest modern buildings can be "out of date" before they are finished. The new Queen Elizabeth II Conference management systems, directly controlled by actuators on the basis built around a £2.5m energy of calculations received from



The wall-mounted electronic heating controller, developed by Trent Technology, is designed to enable business users to achieve significant savings

management and control system for Sauter incorporating 2,600 measuring and control points. If it were being designed today the system would incorporate direct digital control and stand alone intelligent outstations.

The extra flexibility given by direct digital control systems is particularly relevant in transferring the traditional heating and ventilation controls, and is itself an advance on basic temperature management systems directly controlled by actuators on the basis built around a £2.5m energy of calculations received from

sensors, offering control options not economically feasible by the earlier method of using the RMS to change control setting on traditional electrical or pneumatic control devices.

The majority of EMS have gone into existing buildings as retrofit performing such cost effective functions as optimum start/stop and time of day control, but they have not taken over the function of the temperature controls already in the building; this has been done by

independent discreet controllers. The true DDC system is able to provide direct and accurate control of temperature. With building energy management systems Britain matches and even leads the rest of the world. The new and dynamic companies are poised to what is essentially a pioneering market which has yet to take off in a big way. It is a success story in waiting.

Ken Cooper is Editor of Energy Manager.

Ken Cooper

Petrol and oil

More savings claimed in new products

FOR THE last 10 years hundreds of researchers have been at work making cars run on less petrol and use less oil. This year, tribology—the science of lubrication—has come into its own, with all the major oil companies launching new products which claim to be still more economical both on petrol consumption and on consumption of oil, as well as cleaner and kinder to the engine.

This year it has not just been the tribologists who have been hard at work, but their counterparts who design the fuel itself.

Until recently the battle for better products had been waged chiefly through sales of oils, with petrol regarded more as a commodity, with one brand as good as any other.

Shell challenged that assumption in May this year with the launch of Formula Shell, a new petrol claiming to give better all-round performance.

A reduced consumption of petrol is one of Formula Shell's strongest selling points, the company says that motorists can expect fuel savings of about 2.3 per cent. These are supposed to rise slightly the longer a car runs on the new petrol and after a year of use are said to rise to about 3 per cent.

Such savings are fairly minor compared to those wrought by the car manufacturers, which since the first oil shock in 1973 have been channelling considerable effort into producing increasingly fuel-efficient engines.

In seven years, from 1978 to 1985, the number of miles per gallon achieved by the average car off the production lines increased by 20 per cent.

That stemmed at least from the efforts by the oil companies to produce more efficient lubricating oils. Much of their research has resulted from pressure from the big car makers, who want to achieve the highest possible number of miles per gallon for their new models.

While the car manufacturers have reduced fuel consumption by cutting the weight of their cars and by reducing aerodynamic drag, lubricants have achieved greater efficiency by reducing the amount of power lost within the engine. There is great scope for saving since a large part of the total power produced is used up through friction in the bearings or between the piston rings and bore.

This kind of friction can be lessened by reducing the viscosity of the oil—which means making it thinner and hence cutting its own "drag," or internal resistance.

The move to thinner oil is not new, and was started more than 10 years ago. The problem facing the oil companies—and one which they are only now finding a satisfactory answer to—is how to keep the oil thin, and yet ensure that it still protects the engine.

Some of the fuel-efficient oils developed in the 1970s simply did not offer the engine enough protection. This got worse as new engines were introduced—turbo, for example, which have placed greater demands on the oil.

The solution has been to come up with a much better quality base oil. Oil companies have

taken two routes. Some like BP have produced superior base oils through improving their refining techniques. Others, like Mobil, have started using synthetic oil, which allows the fluids to perform well at both low and high temperatures.

Oil companies vary in the extent to which they promote their new oils in terms of efficiency, or a cleanliness, increased power output, less need for oil changes, or better engine protection.

However, most of the new breed of low-viscosity oils do lower the fuel consumption by up to 3.4 per cent. Although the saving sounds small—according to the calculations of Mr Ken Higgins, BP's senior applications engineer, of lubricants, the saving is equal to two to three weeks of free motoring a year for the average driver.

Even so, the British motorist still needs a lot of convincing. About three-quarters of drivers buy the cheapest oil available, either the bottom of the range of major brand names, or the still cheaper "own brand" oils.

This may be because the difference in price is obvious to even the most casual customer. A gallon of multigrade oil in a supermarket might cost about £5, compared to about £8 for superior low-viscosity products.

However, as the fuel savings so quickly eliminate this price difference the reluctance of the consumer to pay more might seem shortsighted.

Mobil's new product, Mobil 1 Rally Formula, is particularly expensive, at about £13 for four litres. The oil is claimed to give better all-round engine protection, but Mobil advises that it is not something to be poured down the throat of an old banger, but its use will pay off for any new car.

Engine oils have become so sophisticated that it is hard to see how the quality could be improved further to allow them to get thinner and thinner. "It is going to get tricky over the next few years to go on making improvements to efficiency," says Mr Adrian Black, auto products manager at Shell.

One problem is that energy efficiency, both in car engines and in oils, is increasingly in conflict with demands for lower pollution.

No doubt car engines will go on demanding more from oil, while the UK Government is likely to fall into step with its European counterparts to reduce emissions. This could reduce or even reverse the scope to make oils thinner and more efficient.

Lead-free petrol, which is gradually being introduced in the UK, is better for the environment but worse for the car engines and about 3 per cent worse than ordinary petrol on fuel efficiency.

So far, UK drivers have shown no desire to fill their tanks with lead-free fuel—indeed most stations selling it can count the number of gallons sold so far on one hand.

However, lead-free petrol still costs a few pence extra and if it is given a boost from the Chancellor in next year's Budget, its use could take off.

Lucy Kellaway



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Every day, Reed Paper and Board's mill at Aylesford in Kent produces enough newsprint for 2 million newspapers. As well as Reed Newsprint, the Aylesford mill also manufactures vast quantities of paper and board for the corrugated case industry.

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Asked why coal was preferred to oil, Reed Paper and Board's Director of Purchasing, Michael Gadd comments: "The present low price of oil highlights its biggest problem. Continual price fluctuation makes long-term cost planning impossible. Yes, the price is down today, but sooner or later it will bounce back up again. We cannot live with that kind of situation. Tactical planning isn't for us—

capital-intensive industries such as paper making we must plan strategically over the next decade. And for that we need the price stability of coal."

Reed Paper and Board, like many other forward-thinking companies, have turned to British Coal when it comes to an important investment in the future.

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